

Application No. 10/017,973
Amendment dated January 12,2004
In Reply to Final Office Action of November 17,2003

MTS-520US5

Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 1-42. These drawings replace the original sheets.

Attachments

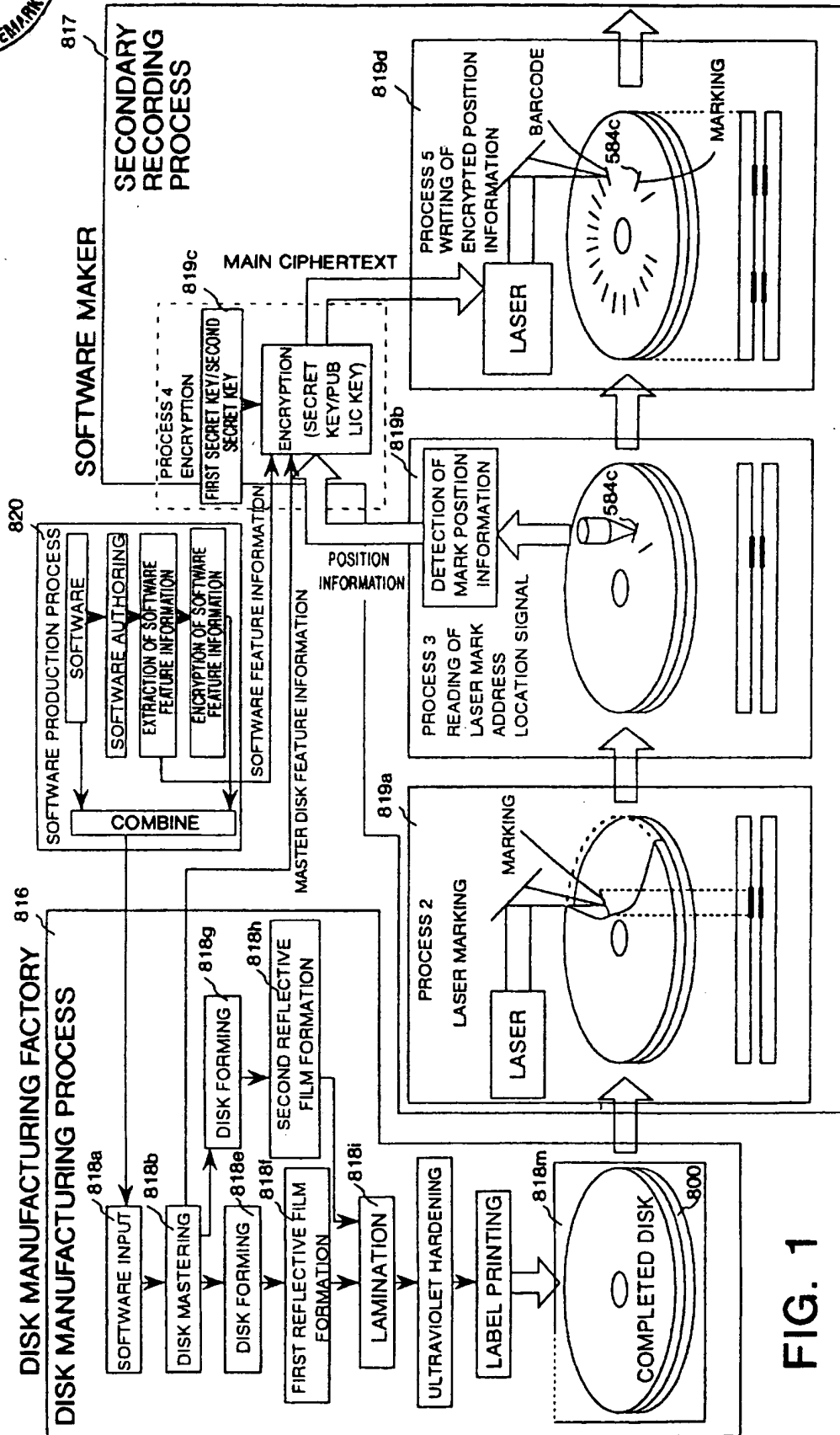
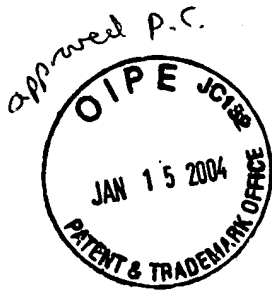


FIG. 1

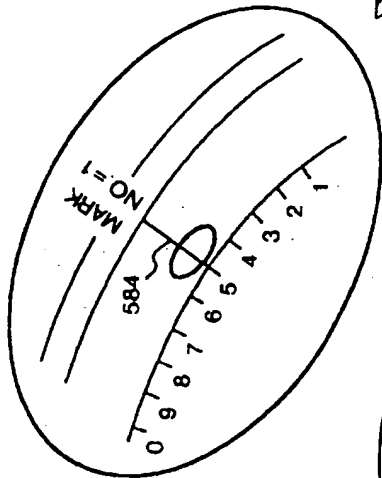
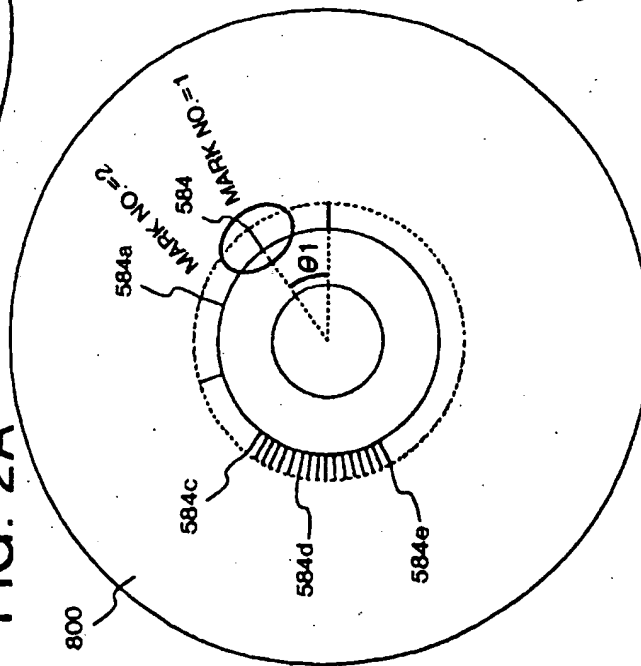


FIG. 2B

FIG. 2A



NONREFLECTIVE PITS ARE
FORMED IN RADIAL DIRECTION

FIG. 2C

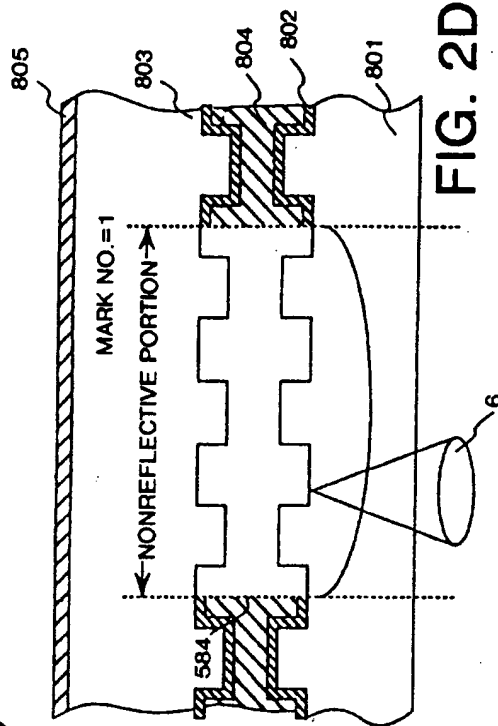
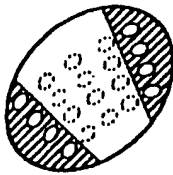


FIG. 2D

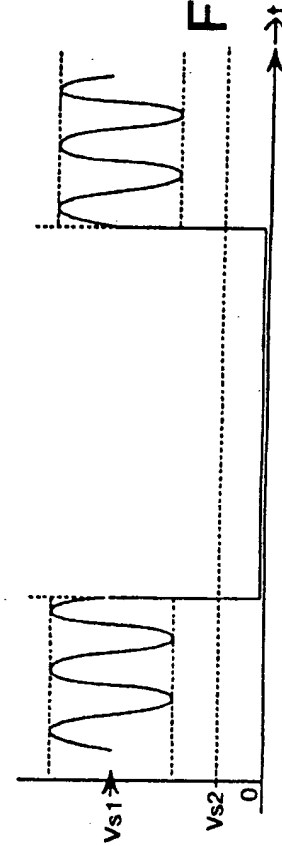


FIG. 2E

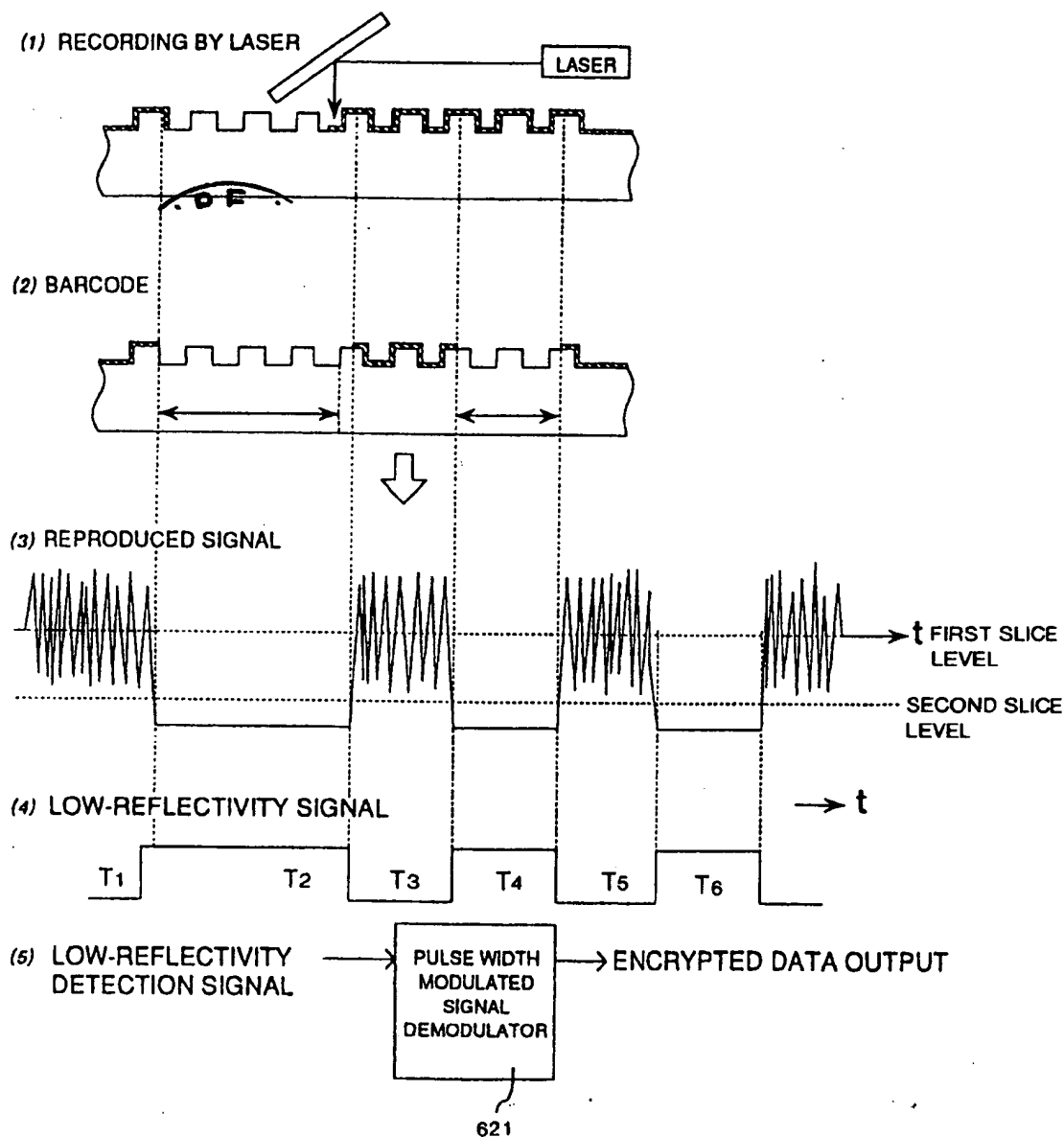


FIG. 3

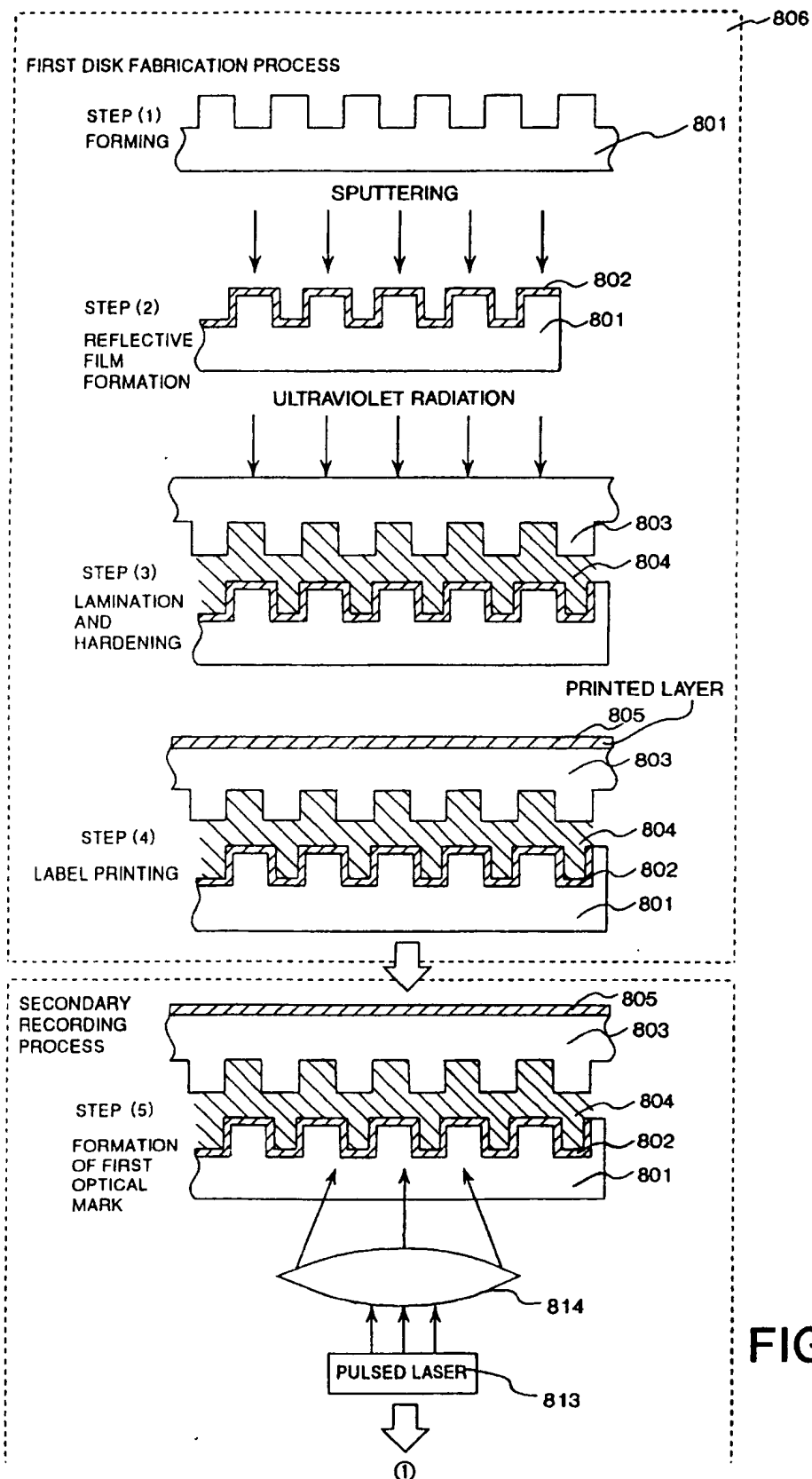
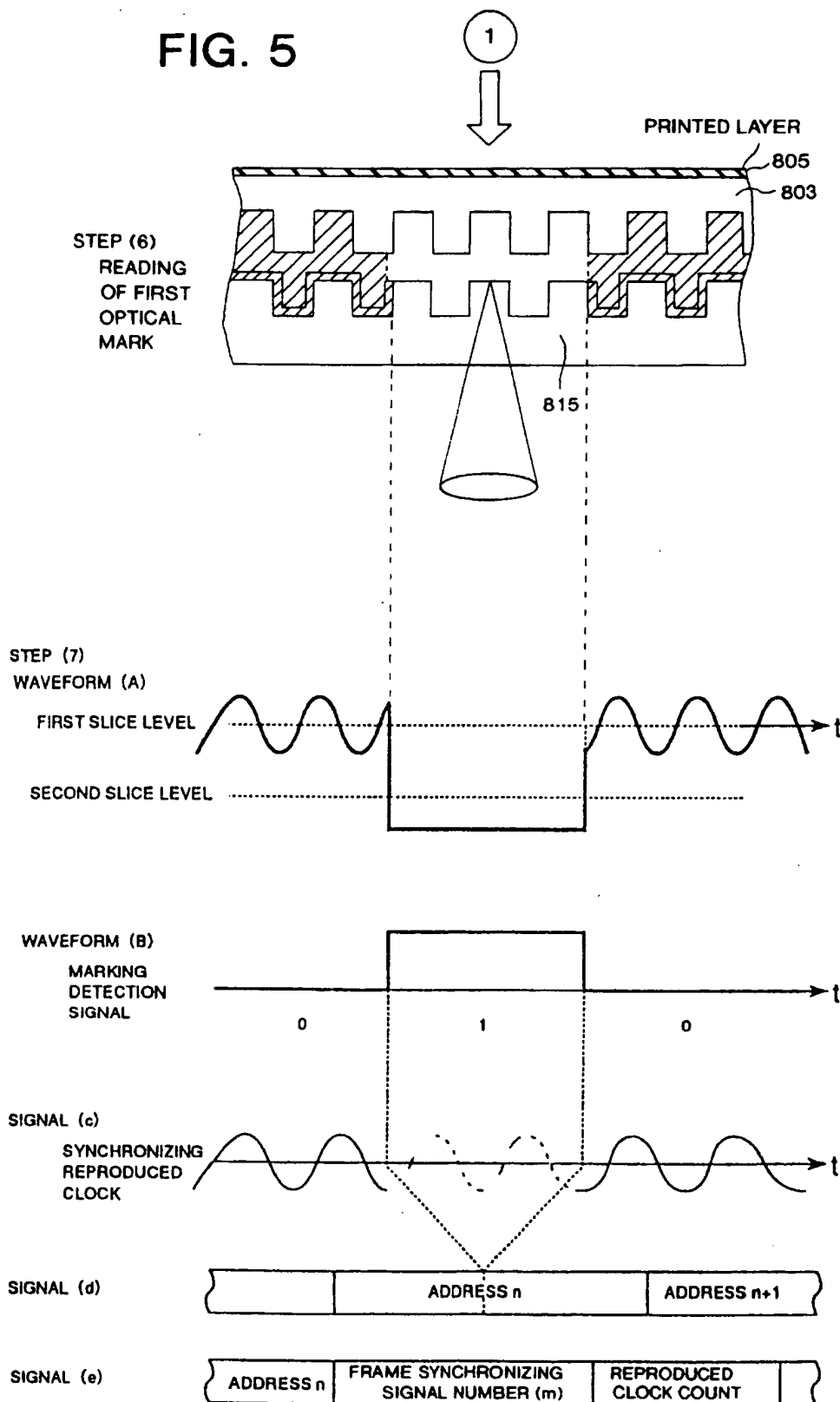


FIG. 4



FIG. 5



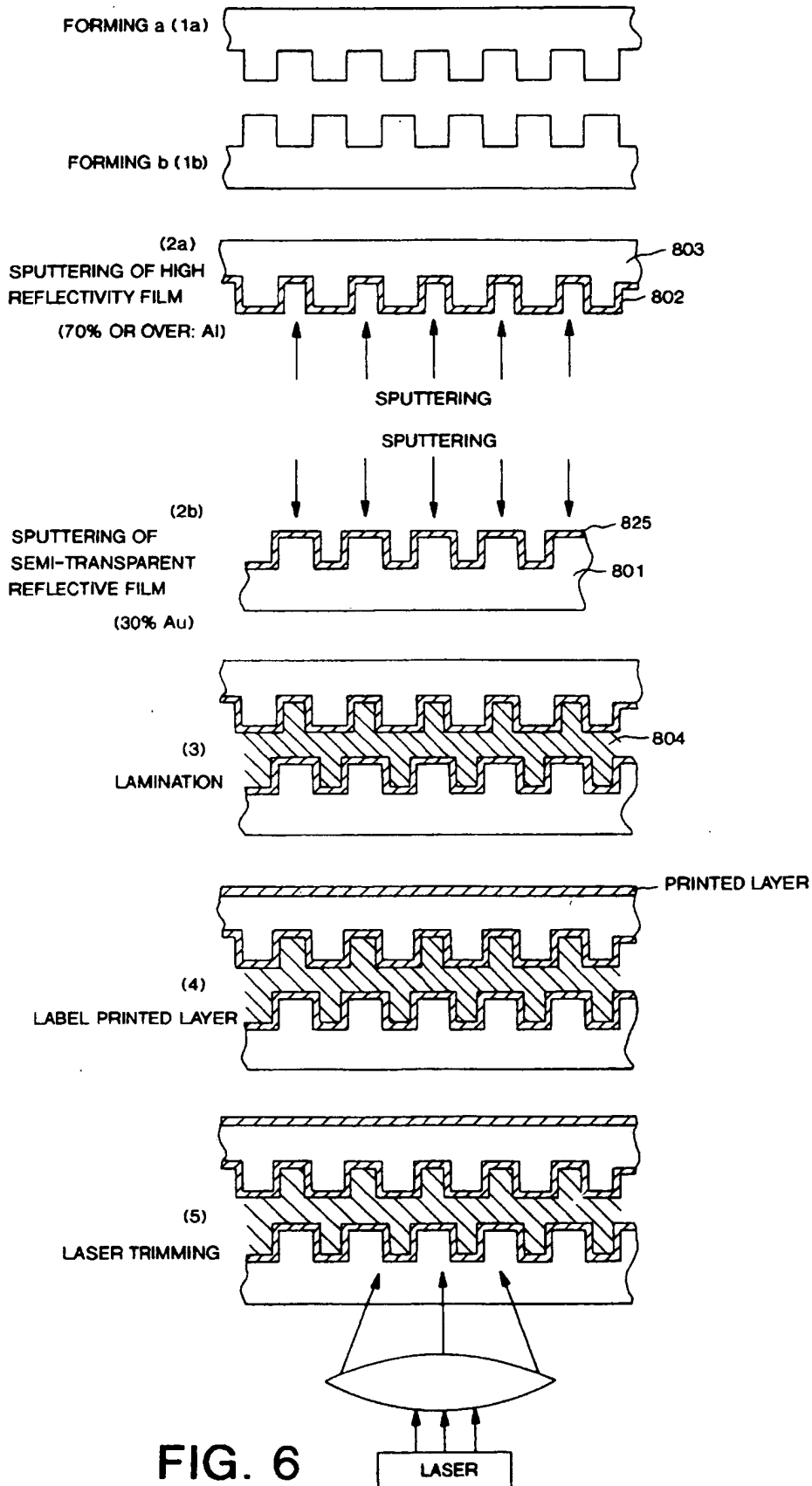


FIG. 6

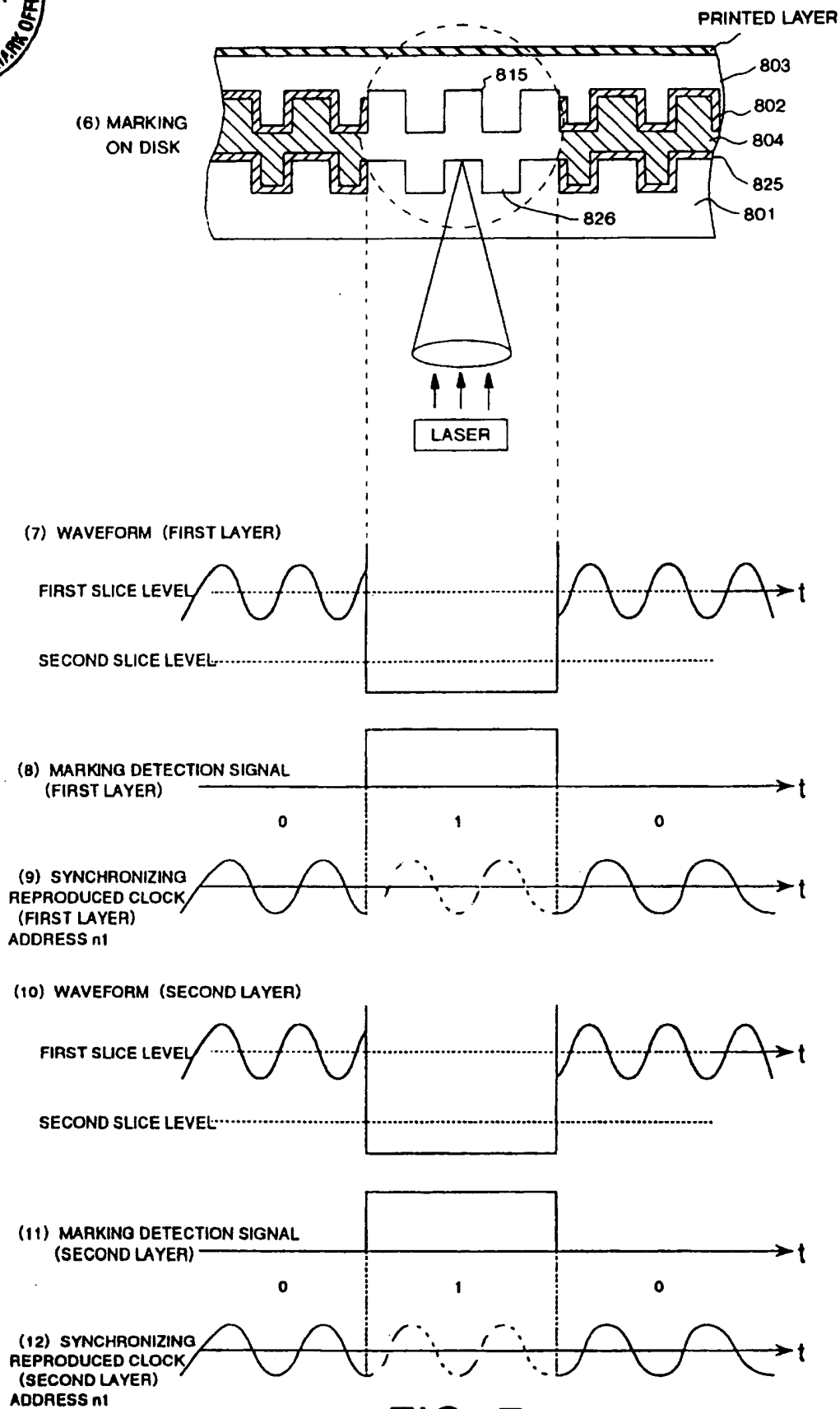


FIG. 7

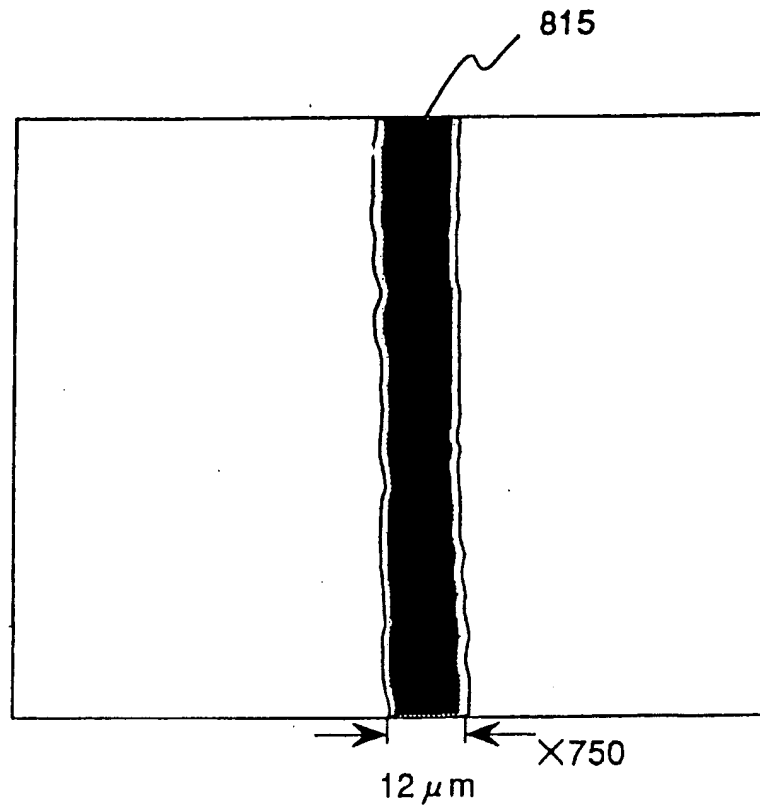


FIG. 8A

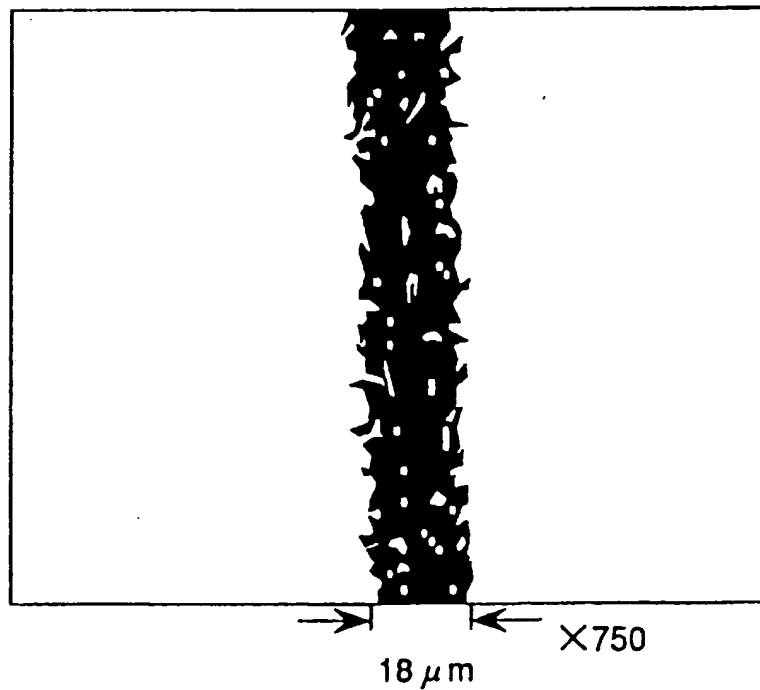
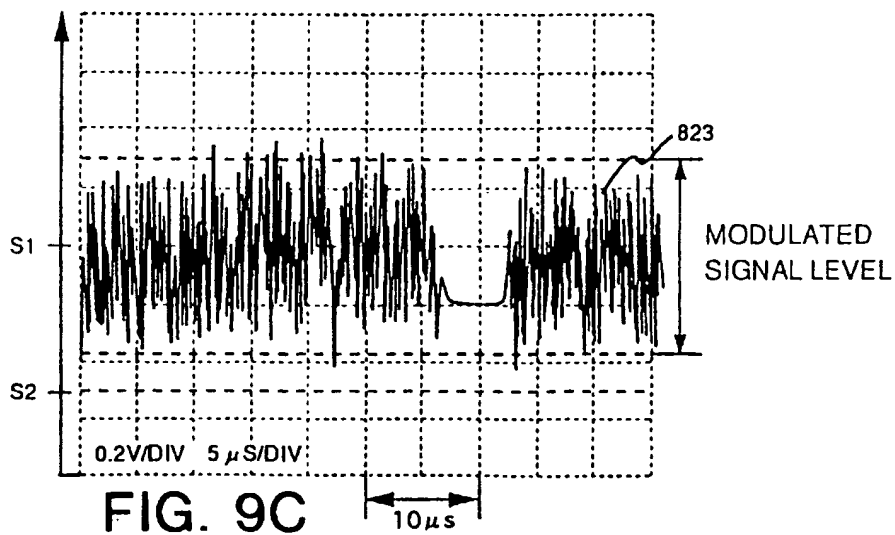
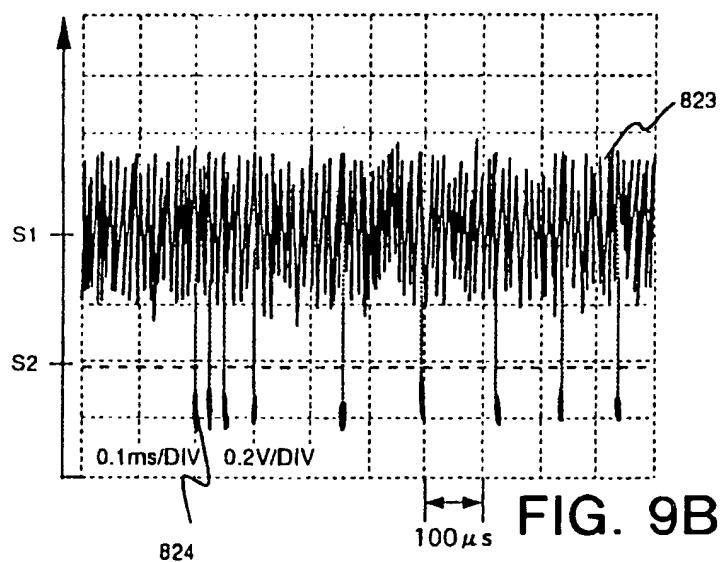
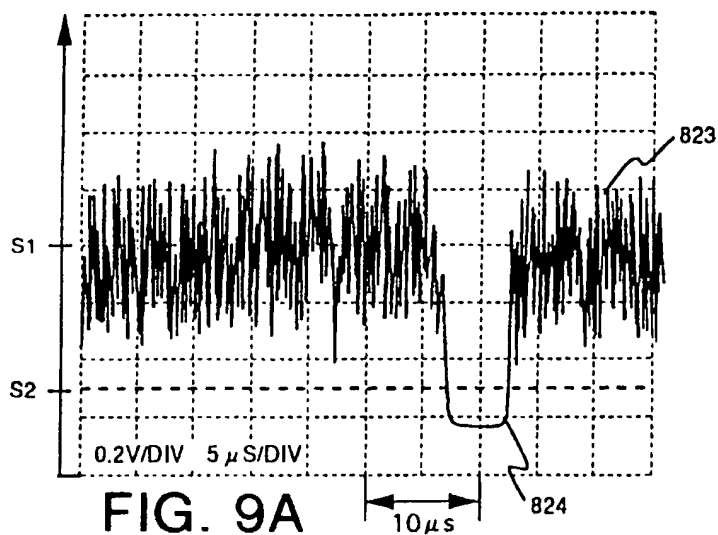


FIG. 8B



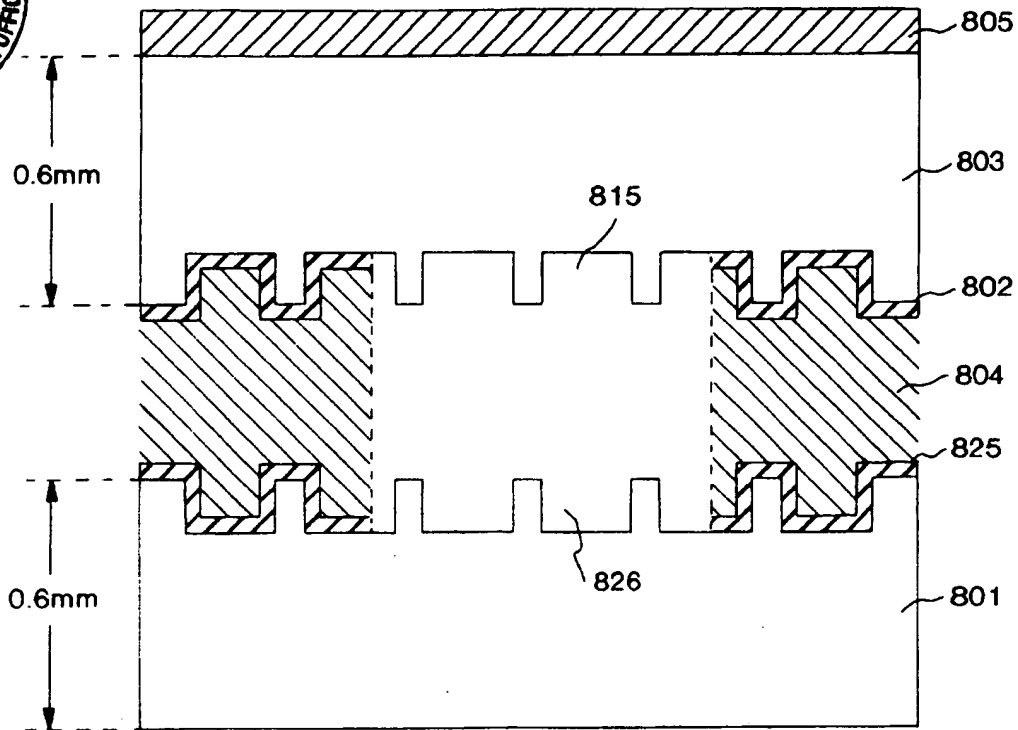


FIG. 10A

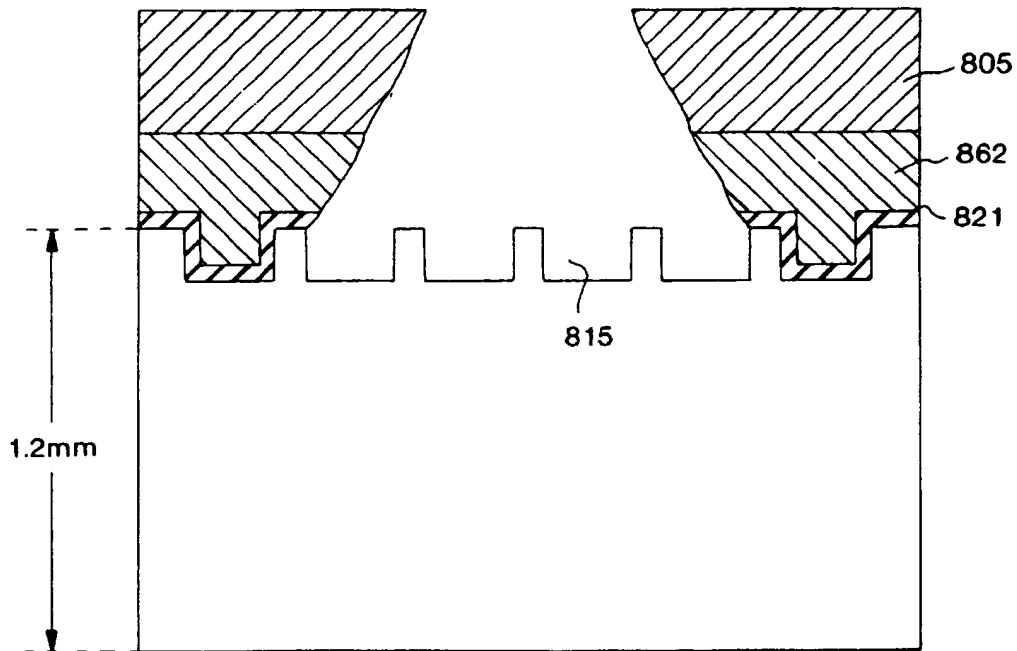


FIG. 10B

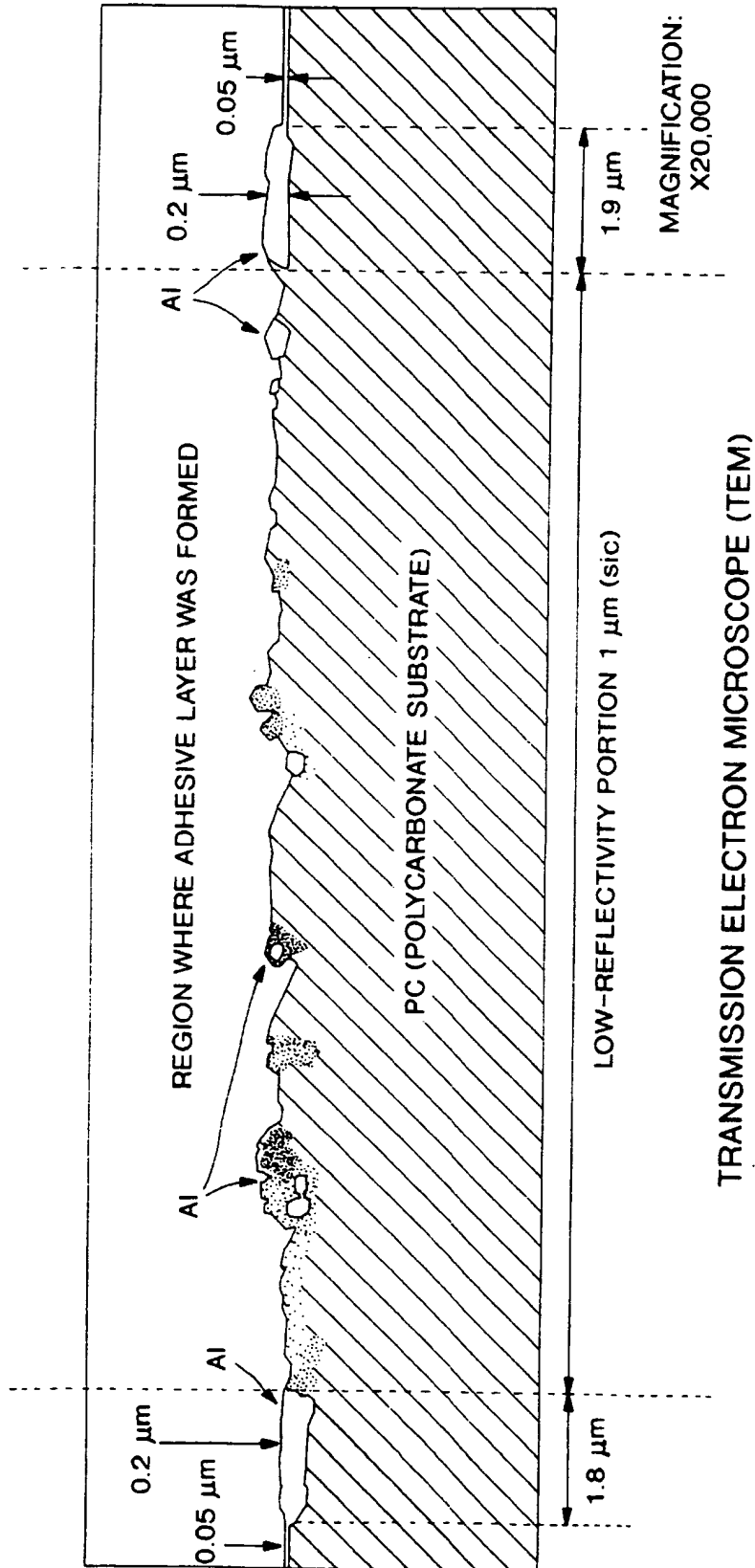


FIG. 11

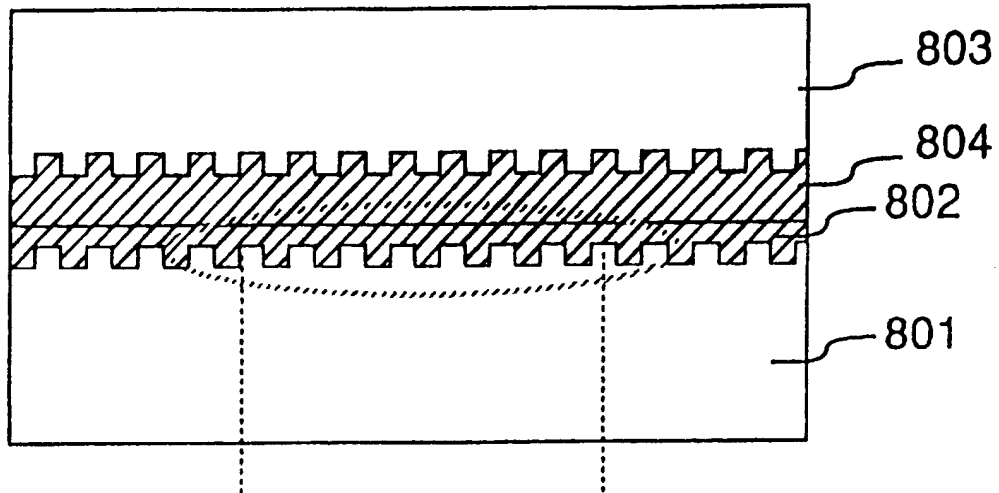


FIG. 12A

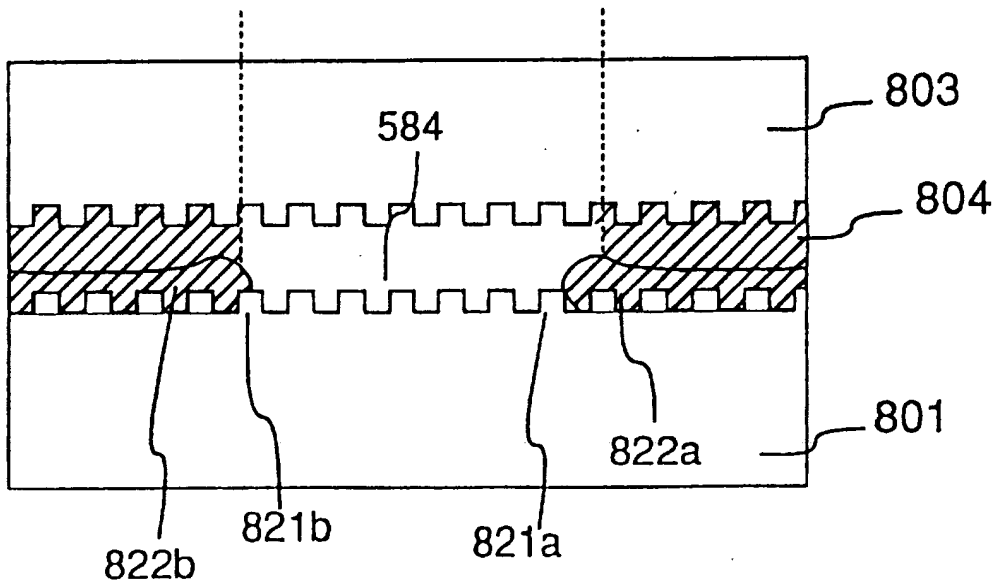
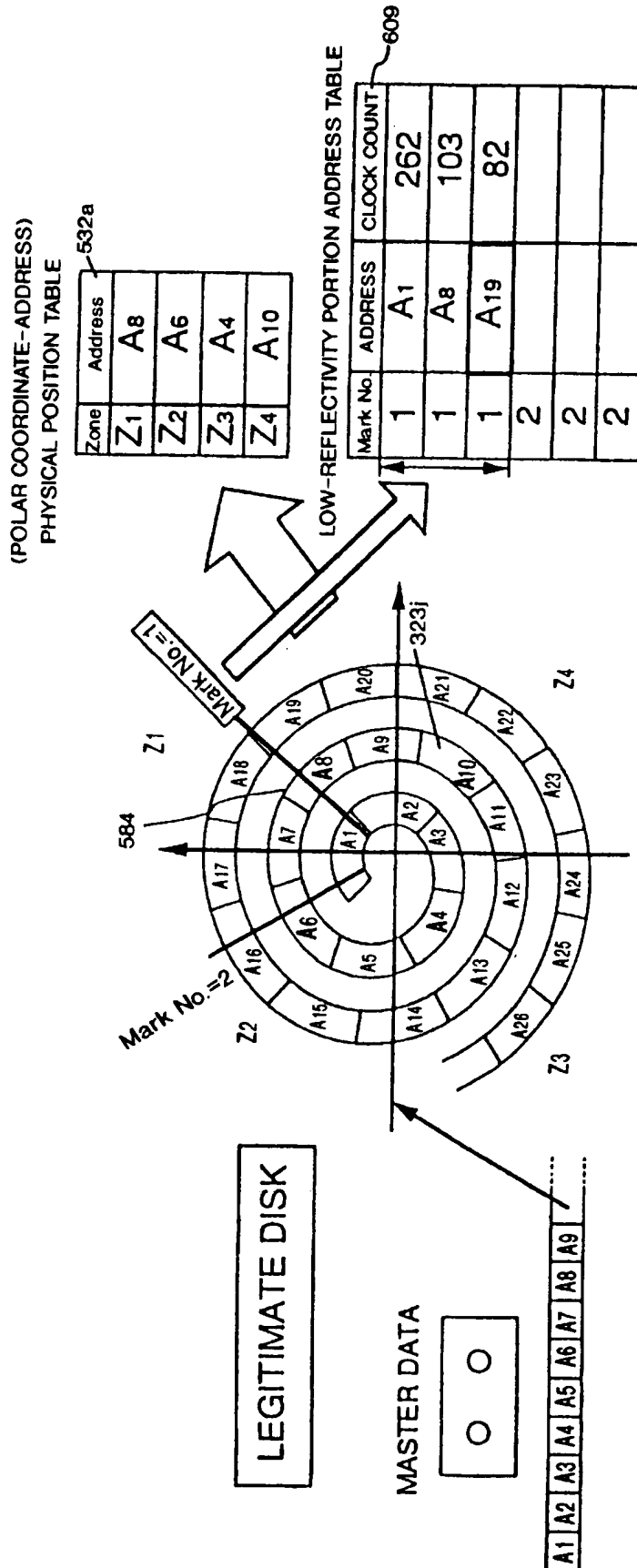
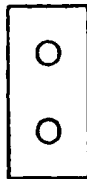


FIG. 12B



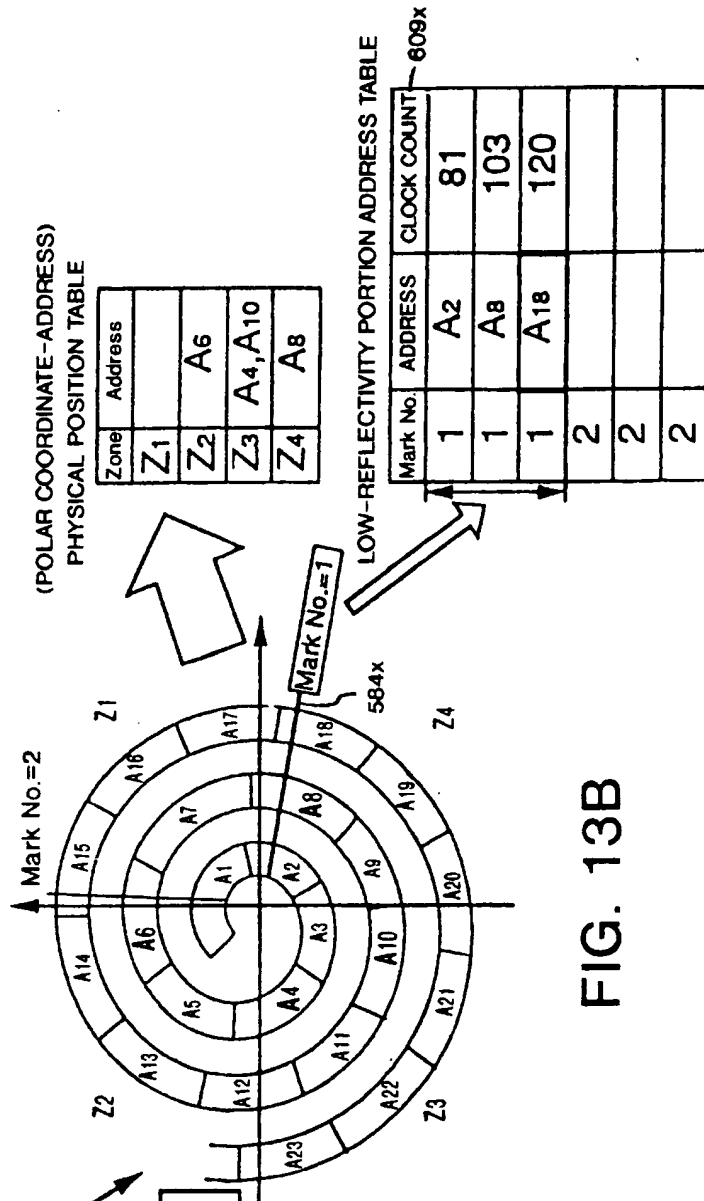


MASTER DATA



A1 A2 A3 A4 A5 A6 A7 A8 A9

ILLEGALLY DUPLICATED CD



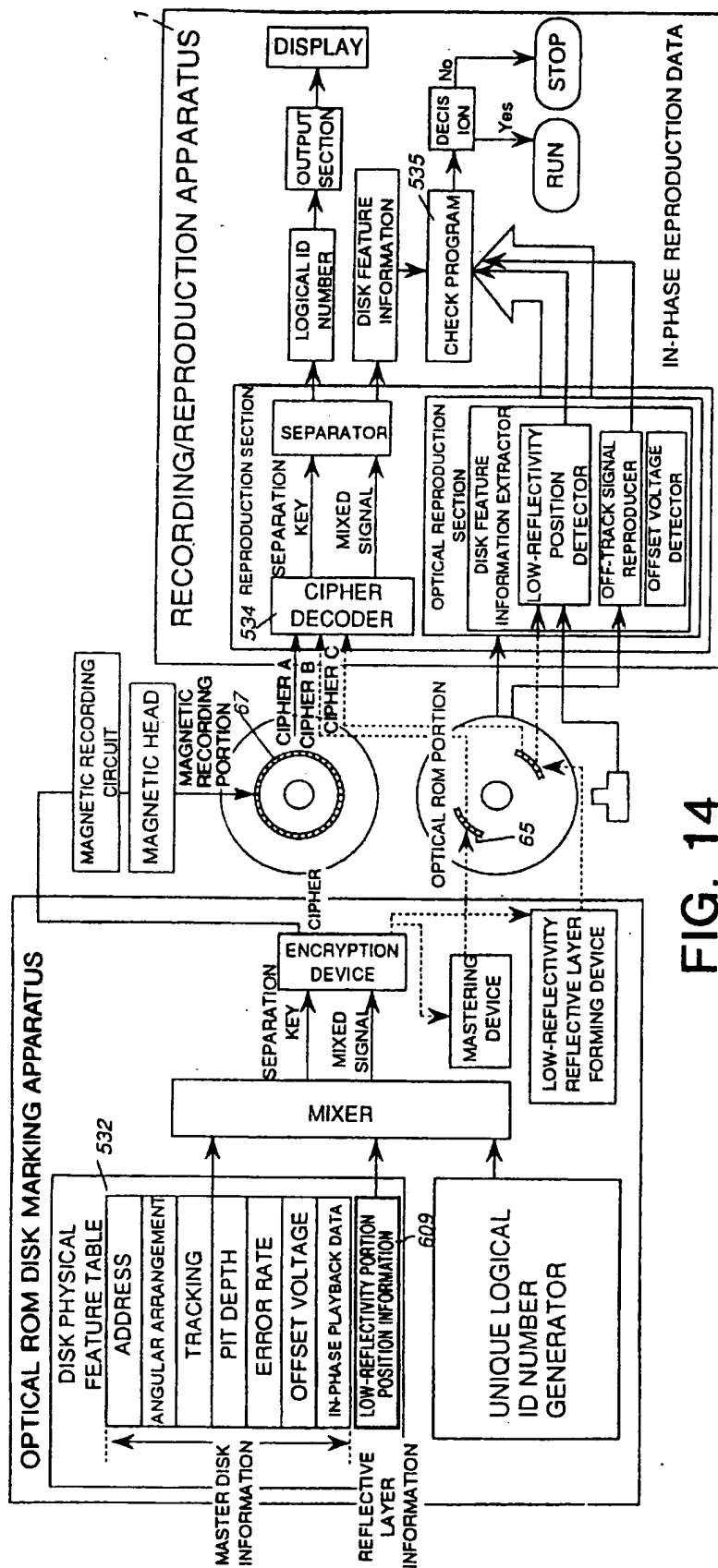


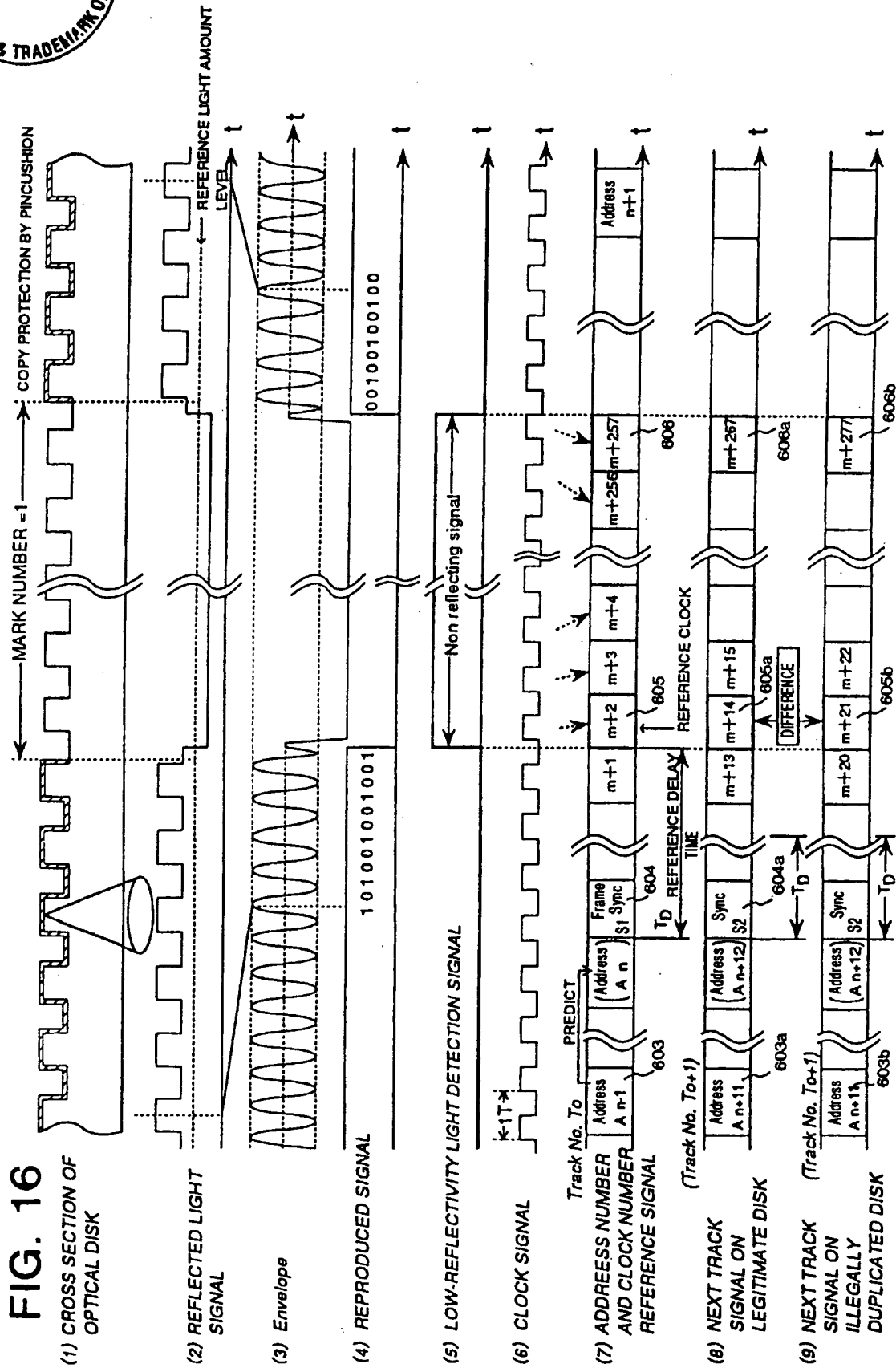
FIG. 14

FIG. 15

The diagram illustrates a system for processing low-reflectivity portion signals. It begins with an **OPTICAL PLAYBACK SIGNAL** entering a **HPF** (590a) and an **AGC** (590b). The **AGC** output goes to a **WAVEFORM SHAPING CIRCUIT** (590c), which also receives a **SEBCODE SIGNAL** (591). The **WAVEFORM SHAPING CIRCUIT** outputs to a **DEMODULATOR EFM** (592). The **DEMODULATOR EFM** output goes to a **CLOCK REGENERATOR** (38a), which outputs a **DEMODULATED CLOCK** (593). The **DEMODULATED CLOCK** is fed into a **LOW-REFLECTIVITY POSITION DETECTOR** (586) and a **LOW-REFLECTIVITY PORTION DETECTION SIGNAL** (594). The **LOW-REFLECTIVITY POSITION DETECTOR** (586) includes a **LOW-REFLECTIVITY LIGHT AMOUNT DETECTOR** (587) and a **LIGHT AMOUNT COMPARATOR (LEVEL SLICER)** (588). The **LIGHT AMOUNT COMPARATOR** (588) outputs to a **DISK ROTATION ANGLE BY OPTICALLY RECORDED SIGNAL** (800). The **LOW-REFLECTIVITY PORTION DETECTION SIGNAL** (594) is fed into a **MARK SIGNAL DETECTOR (PHYSICAL ADDRESS OUTPUT SECTION)** (595), which outputs to an **ADDRESS OUTPUT SECTION** (596). The **ADDRESS OUTPUT SECTION** (596) outputs to a **SYNCHRONIZING SIGNAL OUTPUT SECTION** (597), which outputs to a **SYNC COUNTER** (598). The **SYNC COUNTER** (598) outputs to a **CLOCK COUNTER** (599). The **CLOCK COUNTER** (599) outputs to a **LOW-REFLECTIVITY PORTION ADDRESS/CLOCK NUMBER POSITION SIGNAL** (600). The **LOW-REFLECTIVITY PORTION ADDRESS/CLOCK NUMBER POSITION SIGNAL** (600) is fed into a **LOW-REFLECTIVITY PORTION START/END POSITION DETECTOR** (607). The **LOW-REFLECTIVITY PORTION START/END POSITION DETECTOR** (607) outputs to a **TIME DELAY CORRECTOR** (608). The **TIME DELAY CORRECTOR** (608) outputs to a **REFERENCE DELAY TIME TO MEASURING SECTION** (608a). The **REFERENCE DELAY TIME TO MEASURING SECTION** (608a) outputs to a **COMPARING MEANS** (534). The **COMPARING MEANS** (534) outputs to a **CIPHER DECODER** (534). The **CIPHER DECODER** (534) outputs to an **ID NUMBER OUTPUT SECTION** (750). The **LOW-REFLECTIVITY PORTION DETECTION SIGNAL** (594) is also fed into a **SECOND LOW-REFLECTIVITY PORTION SIGNAL DEMODULATOR** (598b). The **SECOND LOW-REFLECTIVITY PORTION SIGNAL DEMODULATOR** (598b) outputs to a **SECOND LOW-REFLECTIVITY PORTION DETECTING MEANS** (598c). The **SECOND LOW-REFLECTIVITY PORTION DETECTING MEANS** (598c) outputs to a **LOW-REFLECTIVITY PORTION PULSE WIDTH DETECTING MEANS** (598d). The **LOW-REFLECTIVITY PORTION PULSE WIDTH DETECTING MEANS** (598d) outputs to a **DEMODULATED CLOCK [COUNTER] REPRODUCER** (598e). The **DEMODULATED CLOCK [COUNTER] REPRODUCER** (598e) outputs to a **LOW-REFLECTIVITY PORTION ANGULAR POSITION SIGNAL** (598f). The **LOW-REFLECTIVITY PORTION ANGULAR POSITION SIGNAL** (598f) is fed into a **LOW-REFLECTIVITY PORTION ANGULAR POSITION DETECTOR** (598g). The **LOW-REFLECTIVITY PORTION ANGULAR POSITION DETECTOR** (598g) outputs to a **DISK ROTATION ANGLE BY OPTICAL** (800). The **DISK ROTATION ANGLE BY OPTICAL** (800) outputs to a **DISK ROTATION ANGLE DETECTOR** (800). The **DISK ROTATION ANGLE DETECTOR** (800) outputs to a **ROTATION ANGLE DATA BY OPTICAL** (800). The **ROTATION ANGLE DATA BY OPTICAL** (800) outputs to a **ROTATION MARK** (800).



FIG. 16





LEGITIMATE DISK

LOW-REFLECTIVITY PORTION ADDRESS TABLE

609

MARK NO.	START POSITION			END POSITION		
	ADDRESS	Sync No	CLOCK NUMBER	ADDRESS	Sync No	CLOCK NUMBER
1	A n	S ₁	m+2	n		m+257
1	A n+12	S ₂	m+14	n+12		m+267
1	A n+23		m+25	n+23		m+300
:	:		:	:		:
2	A n+1		m+15	n+1		m+160
2	A n+13		m+85	n+13		m+250
2	A n+24		m+68	n+24		m+210
10	A n+9					
10						

PLANNING

ILLEGALLY DUPLICATED DISK

LOW-REFLECTIVITY PORTION ADDRESS TABLE

609x

MARK NO.	START POSITION			END POSITION		
	ADDRESS	Sync No	CLOCK NUMBER	ADDRESS	Sync No	CLOCK NUMBER
1	n	S ₁	m+2	n		m+257
1	n+12	S ₂	m+21	n+12		m+277
1	n+22		m+4	n+22		m+230
:	:		:	:		:
2	n+1		m+36	n+1		m+190
2	n+13		m+120	n+13		m+281
2	n+25			n+25		
10	n+9					
10						

FIG. 17

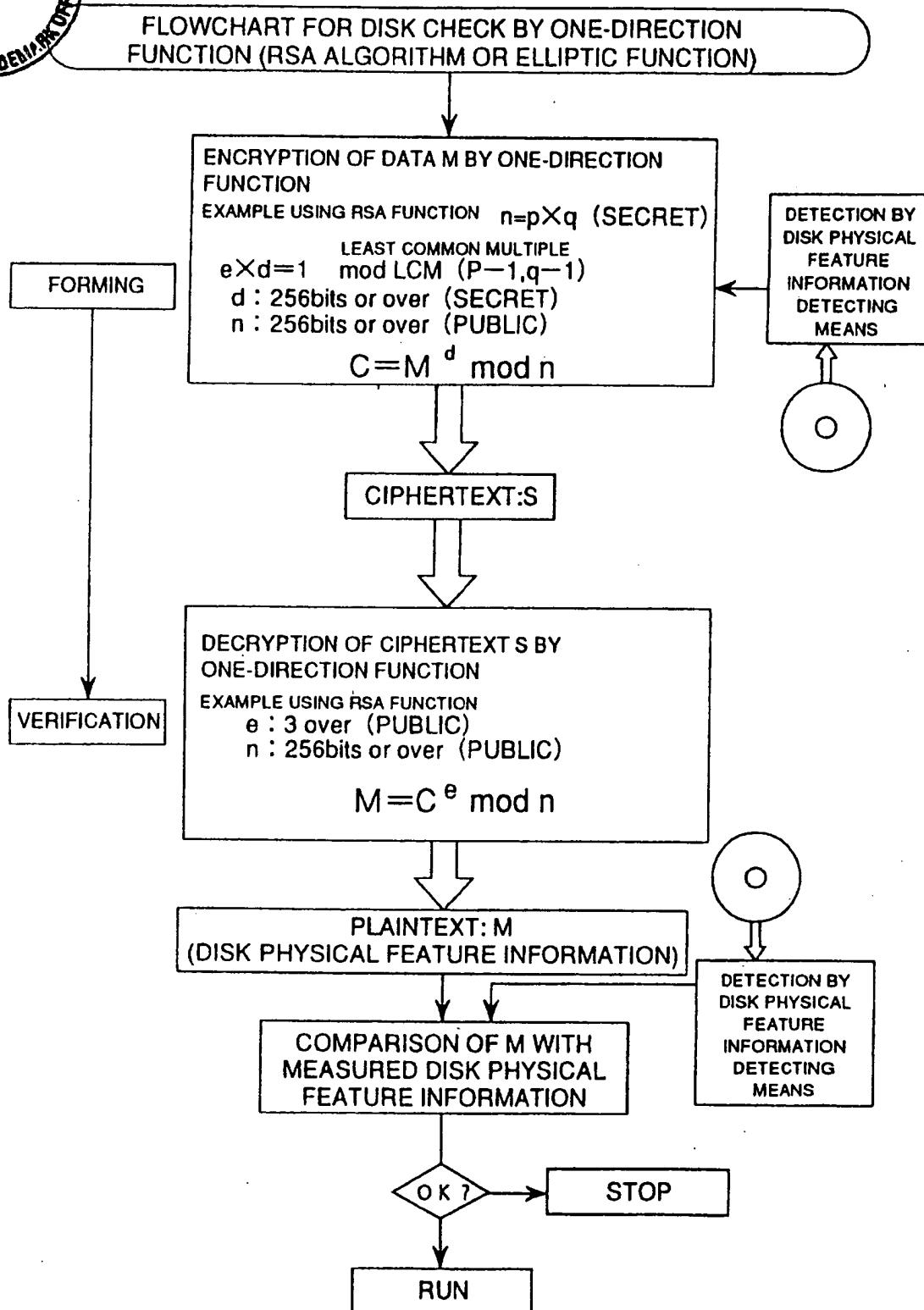
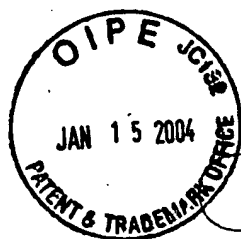


FIG. 18



DIAGRAM SHOWING DIFFERENT PHYSICAL LOCATIONS OF
LOGICAL ADDRESSES ON DIFFERENT MASTER DISKS

PHYSICAL LOCATIONS OF THE SAME LOGICAL ADDRESSES ON MASTER DISKS
PRODUCED ON DIFFERENT DAYS

- FIRST MASTER DISK ○ CLV=1.231m/sec(SRC##2 MISI)
SECOND MASTER DISK ● CLV=1.245m/sec(FZ-SJ1951A 3)
THIRD MASTER DISK ▲ CLV=1.308m/sec(FZ-SJ1951AT 8)

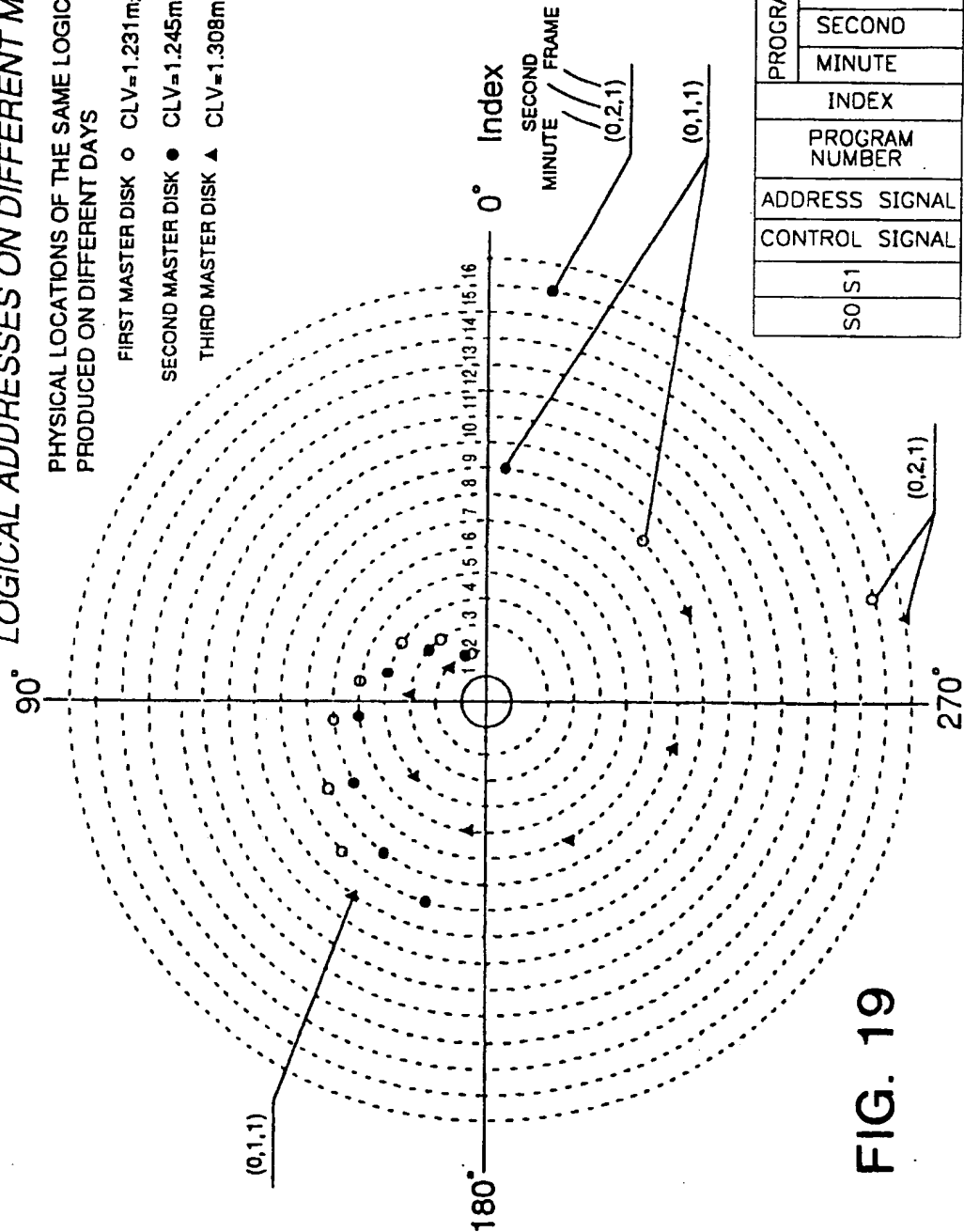
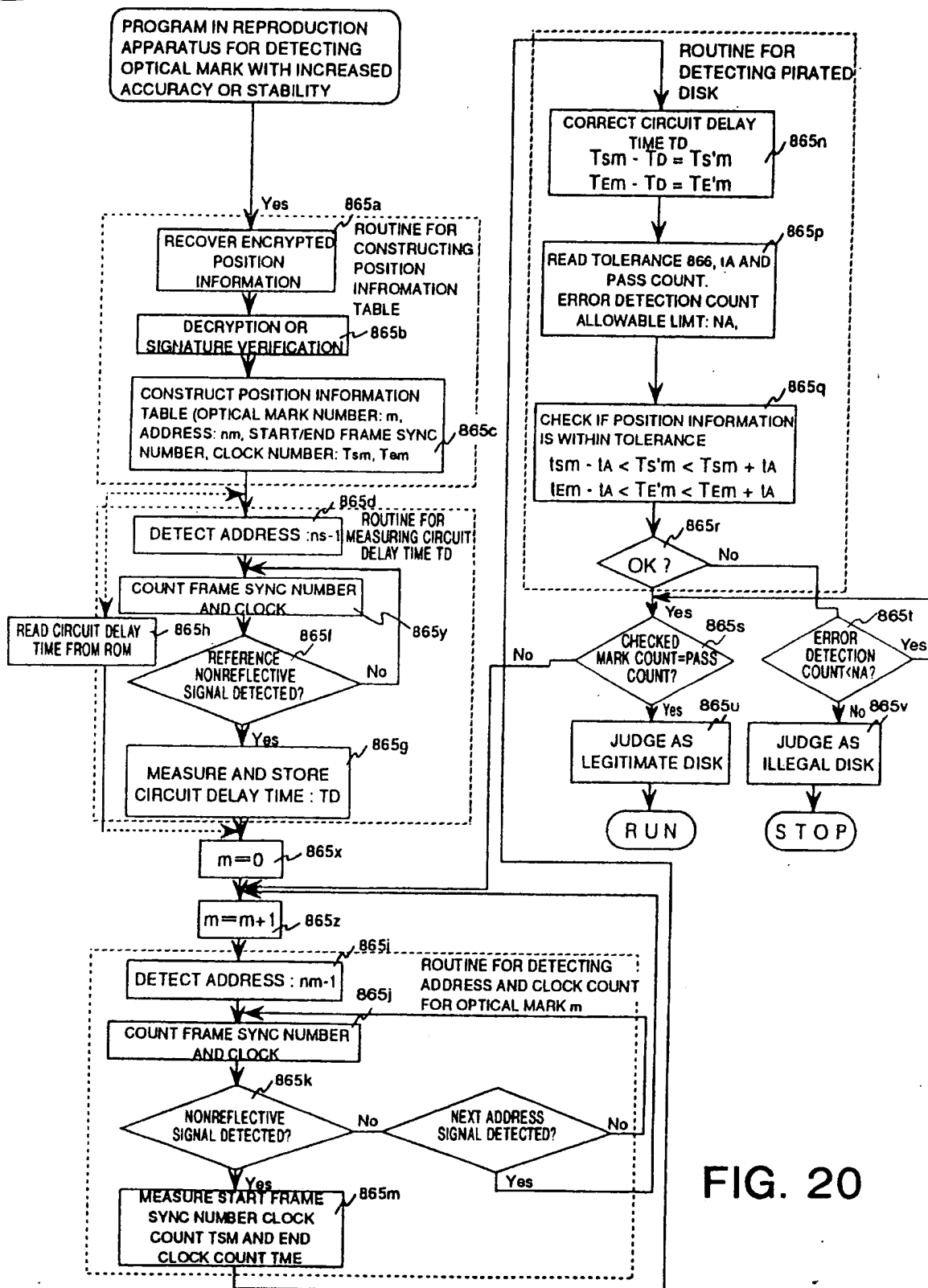


FIG. 19

ERROR-CORRECTING CODE CRCC	
TOTAL	SCC
	SECOND
	MINUTE
0	
PROGRAM	SCC
	SECOND
	MINUTE
INDEX	
PROGRAM NUMBER	
ADDRESS SIGNAL	
CONTROL SIGNAL	
S0	
S1	



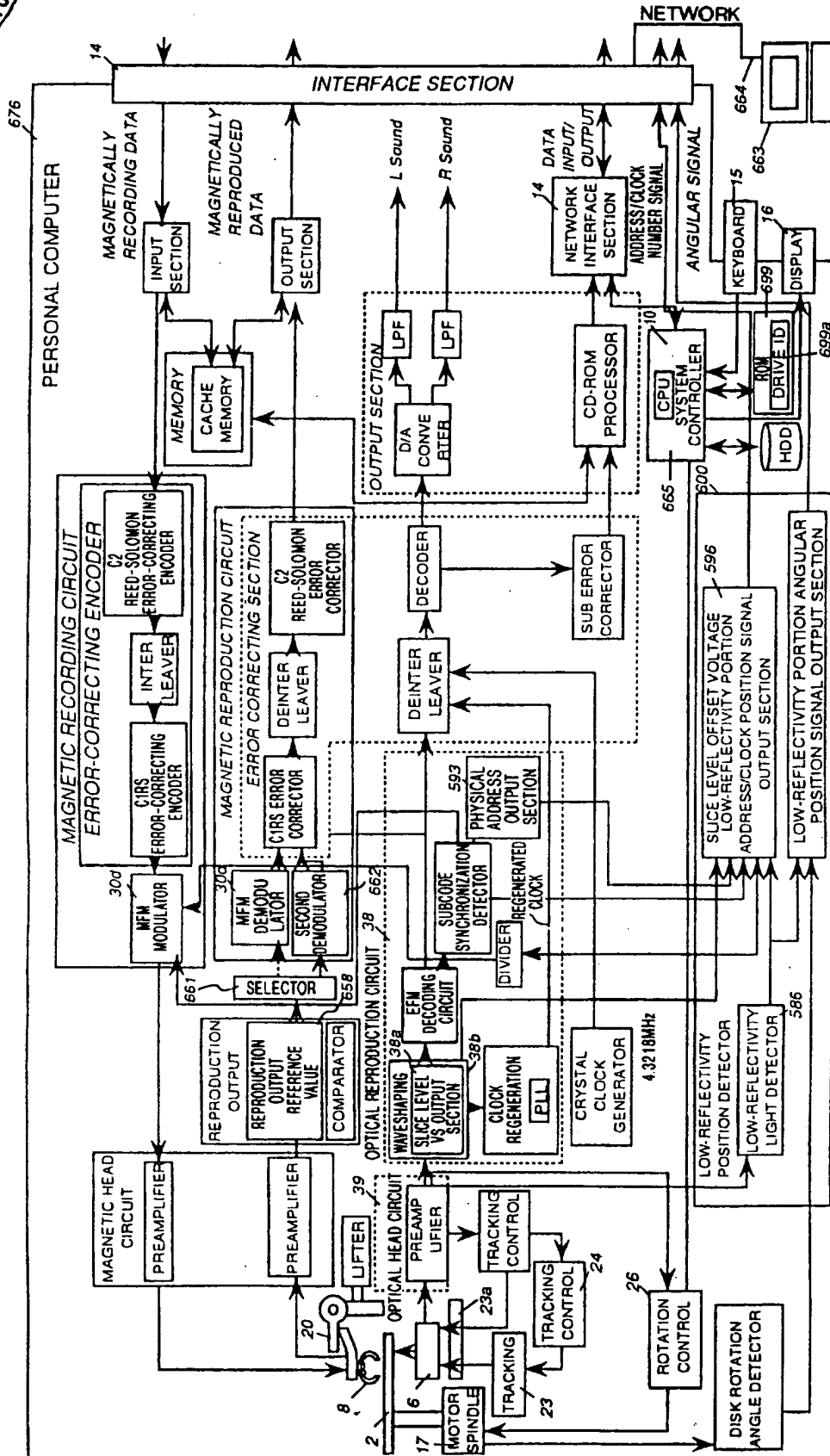
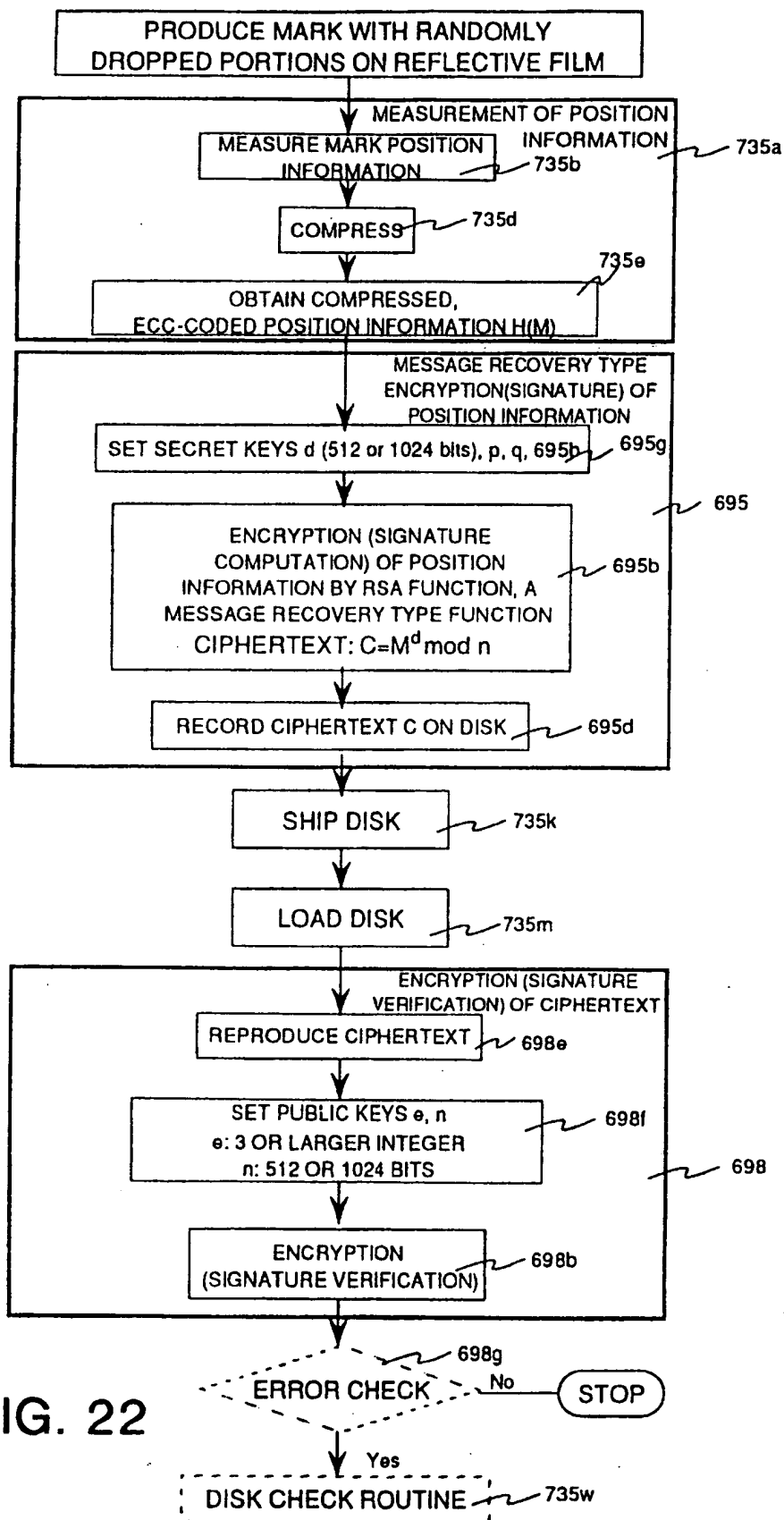


FIG. 21



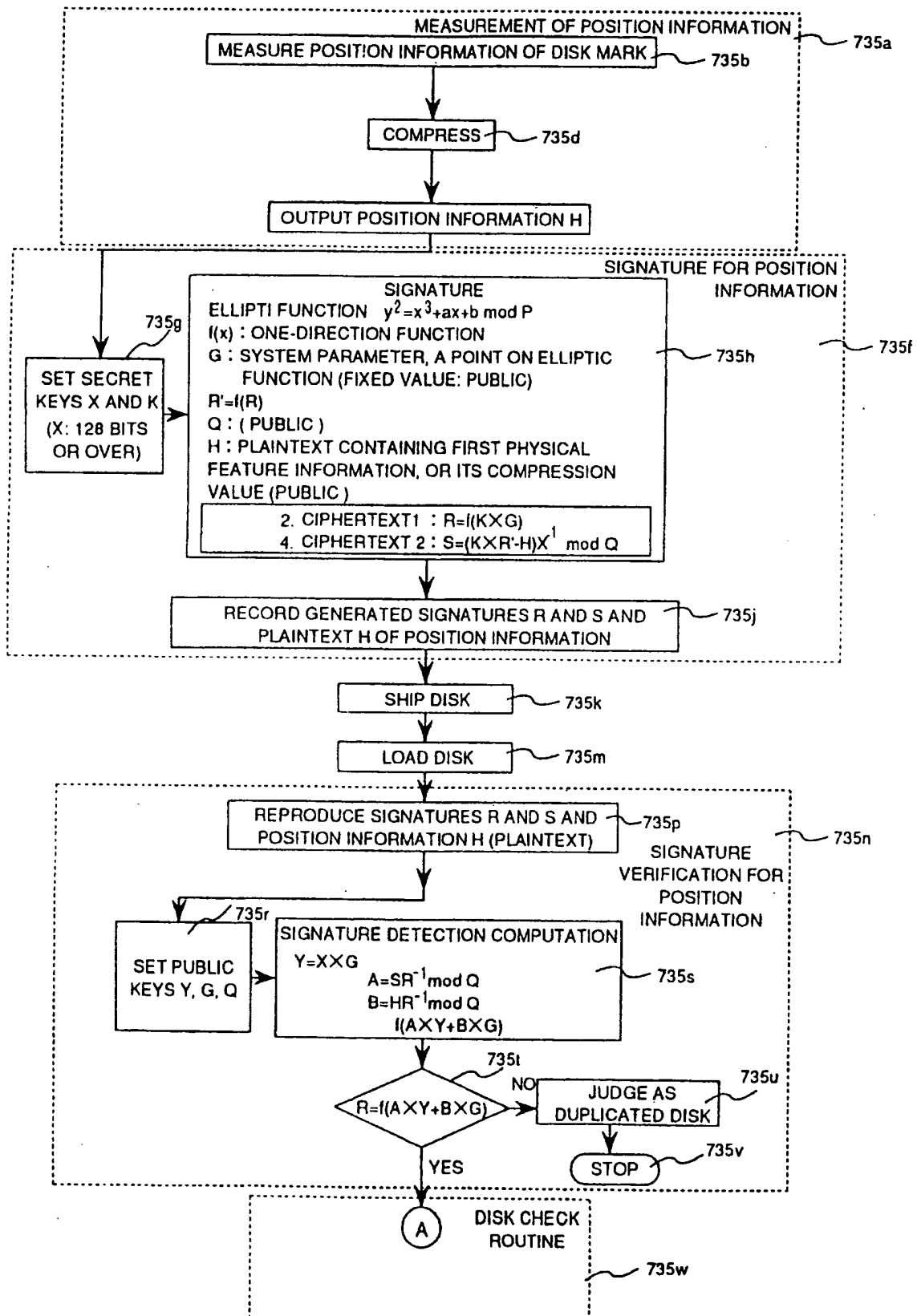


FIG. 23

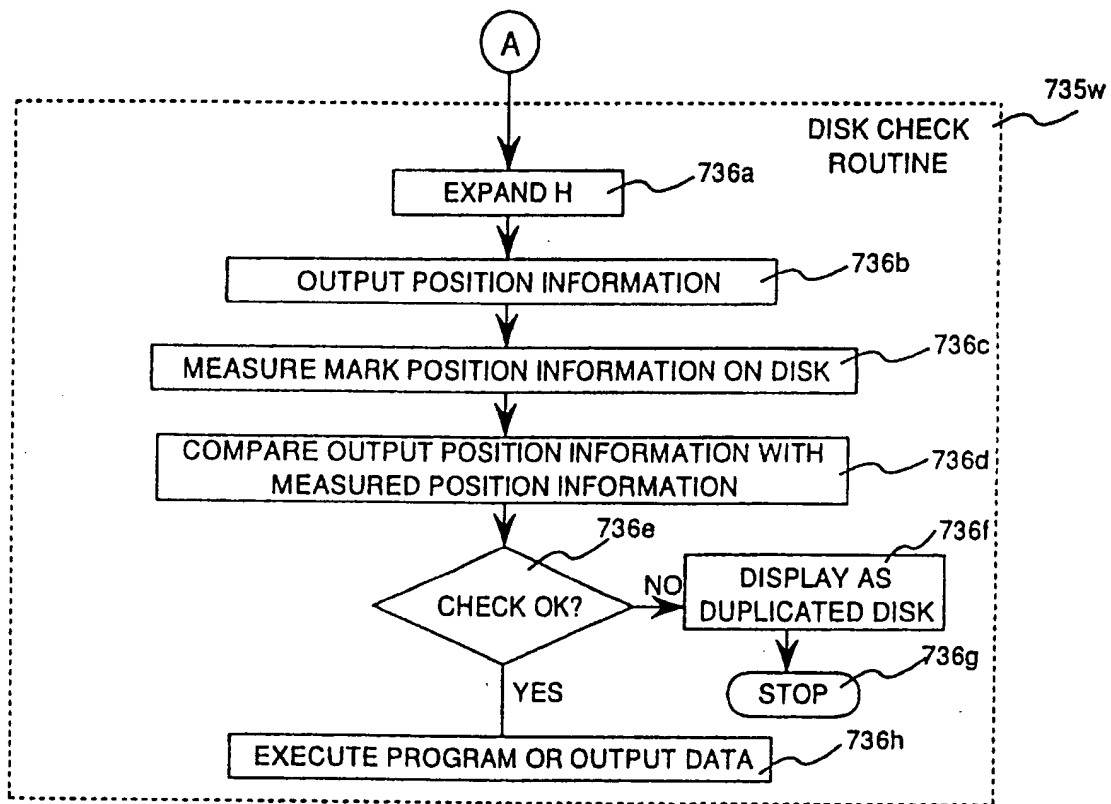


FIG. 24

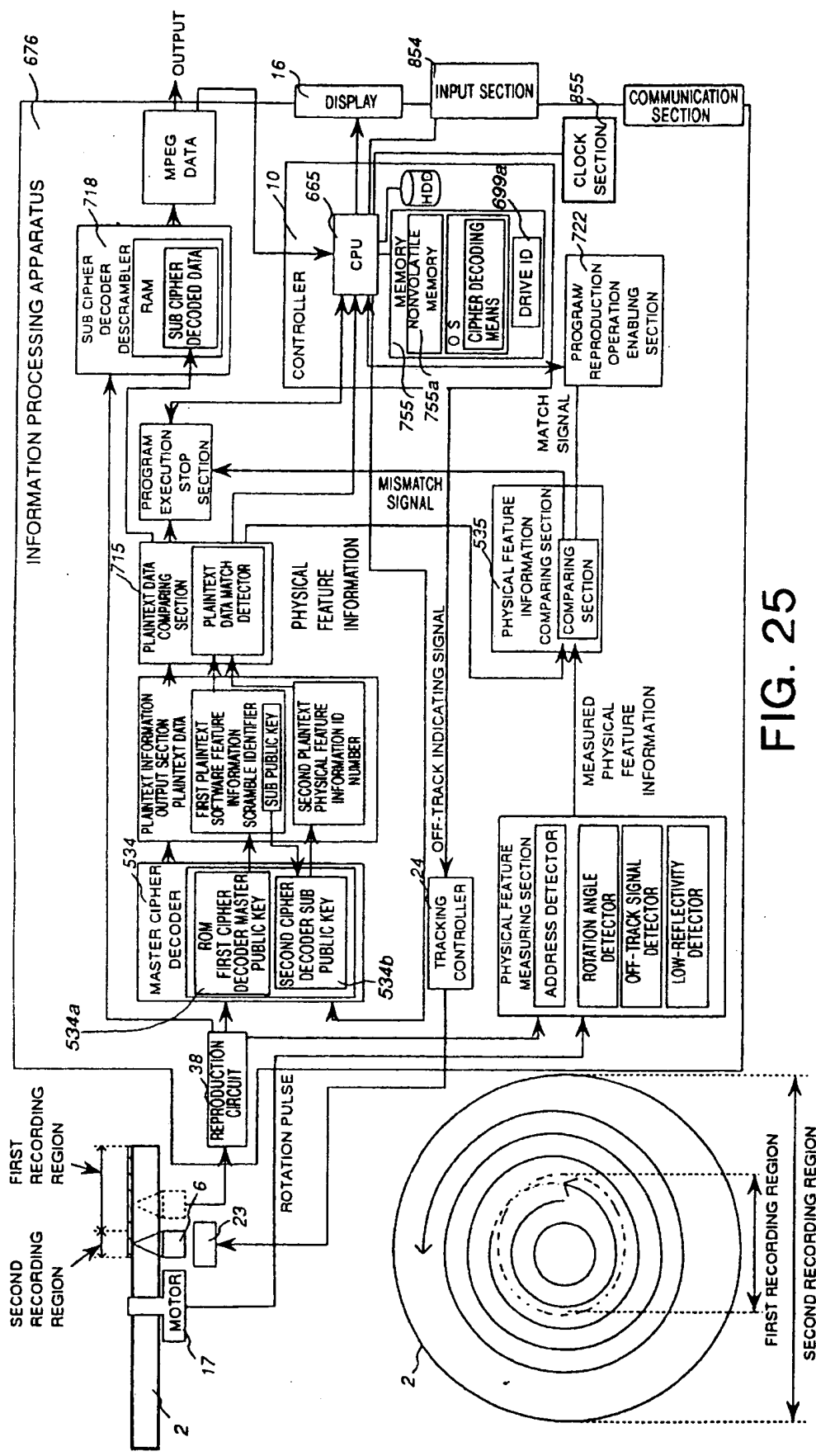
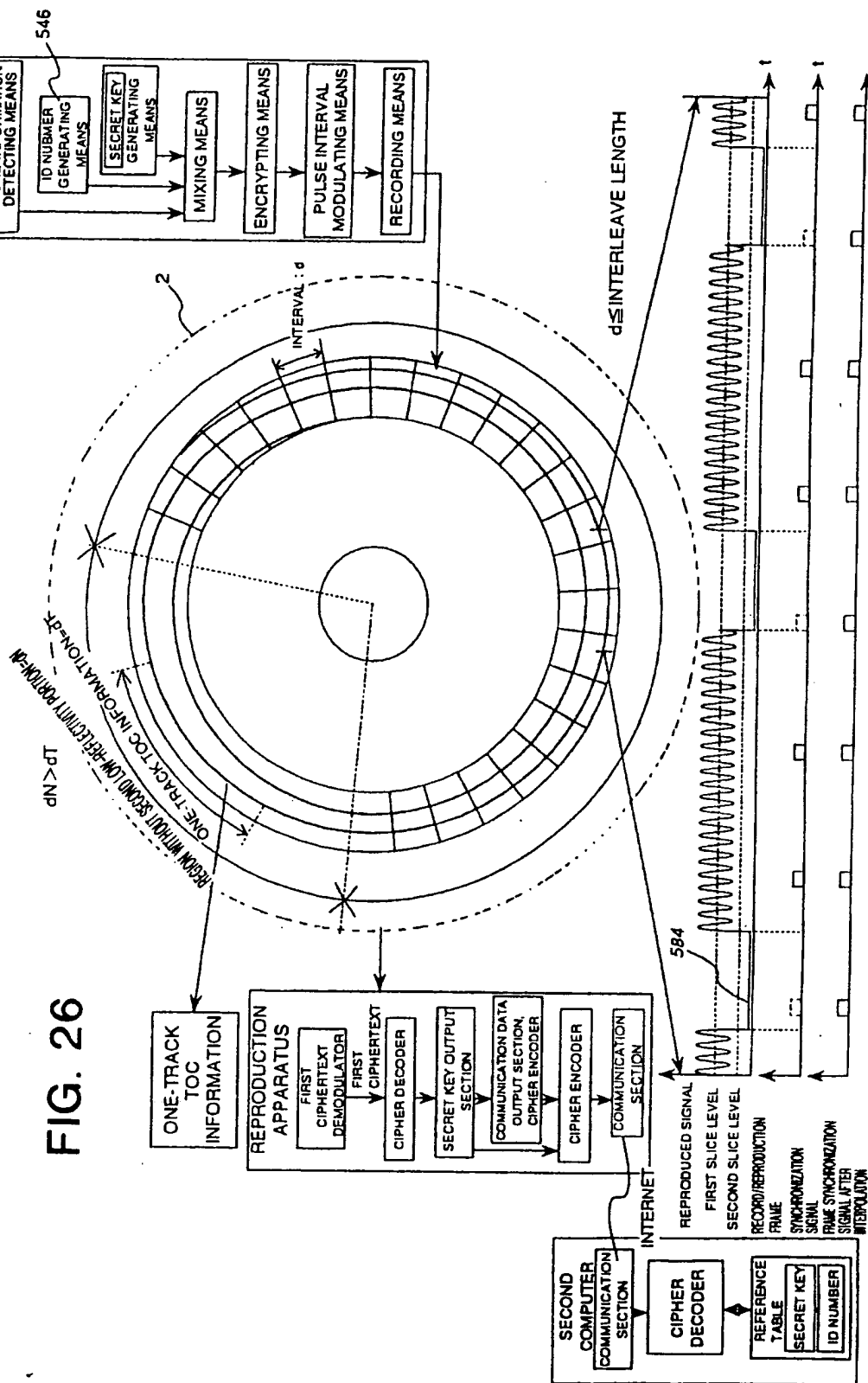
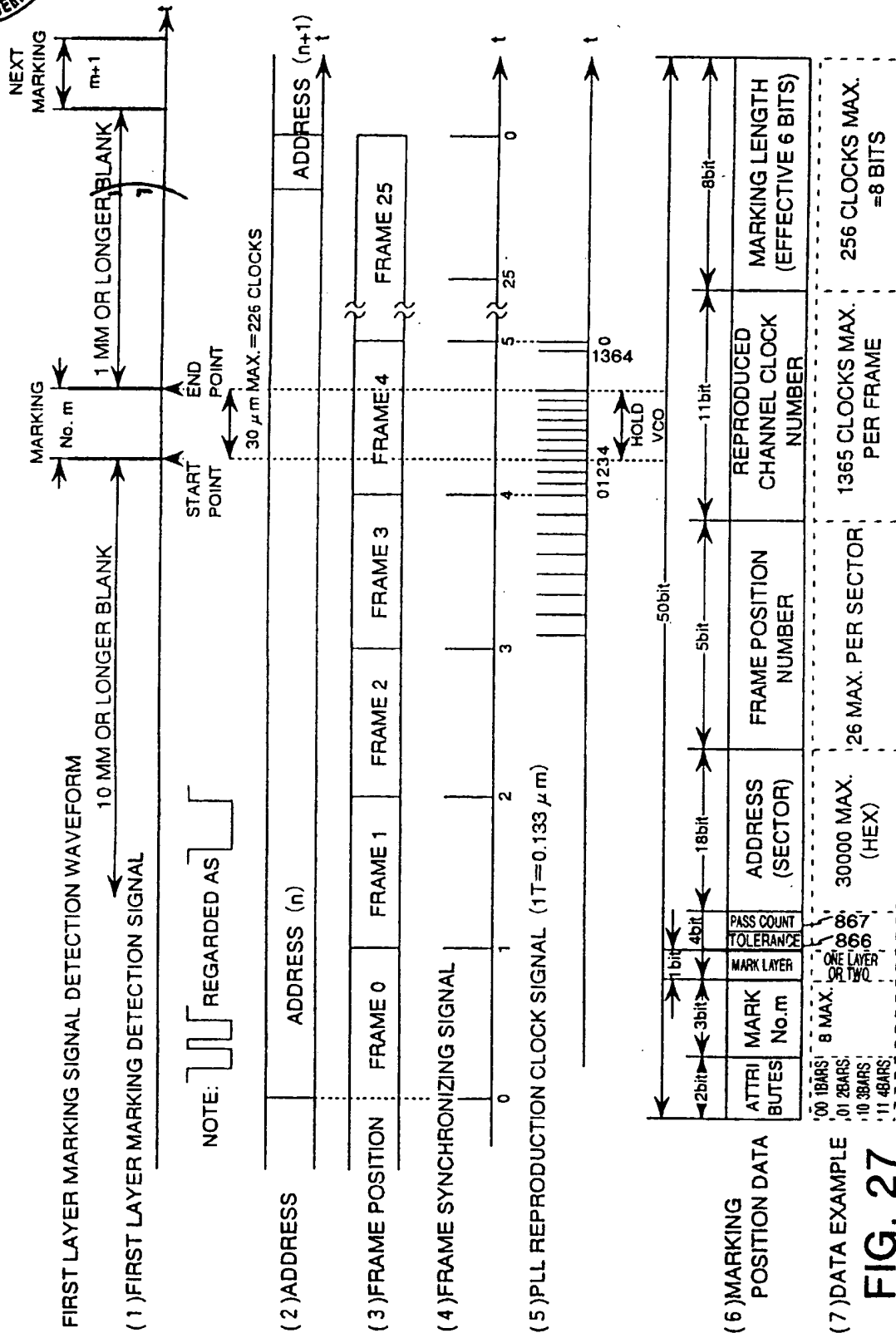


FIG. 25





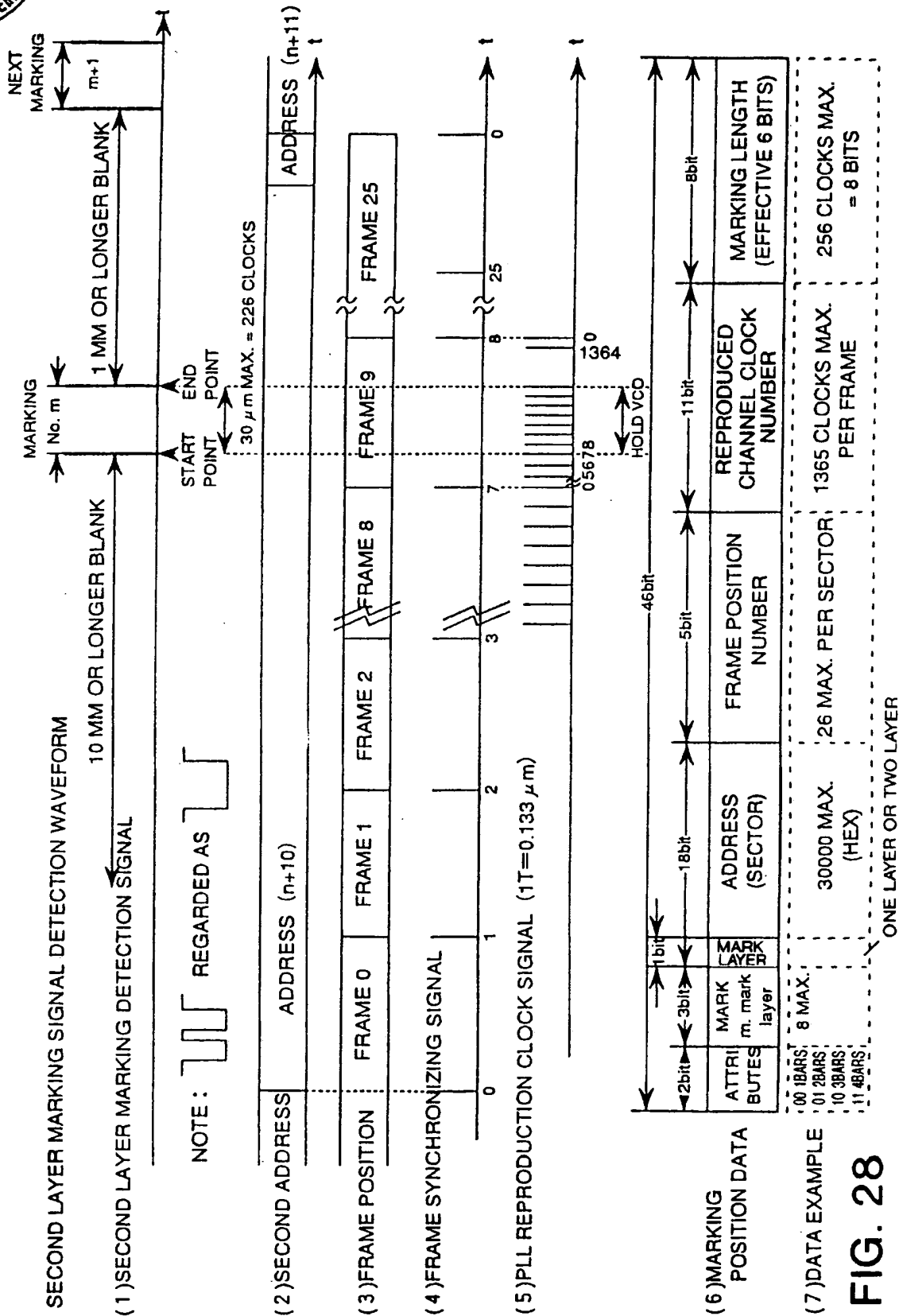


FIG. 28

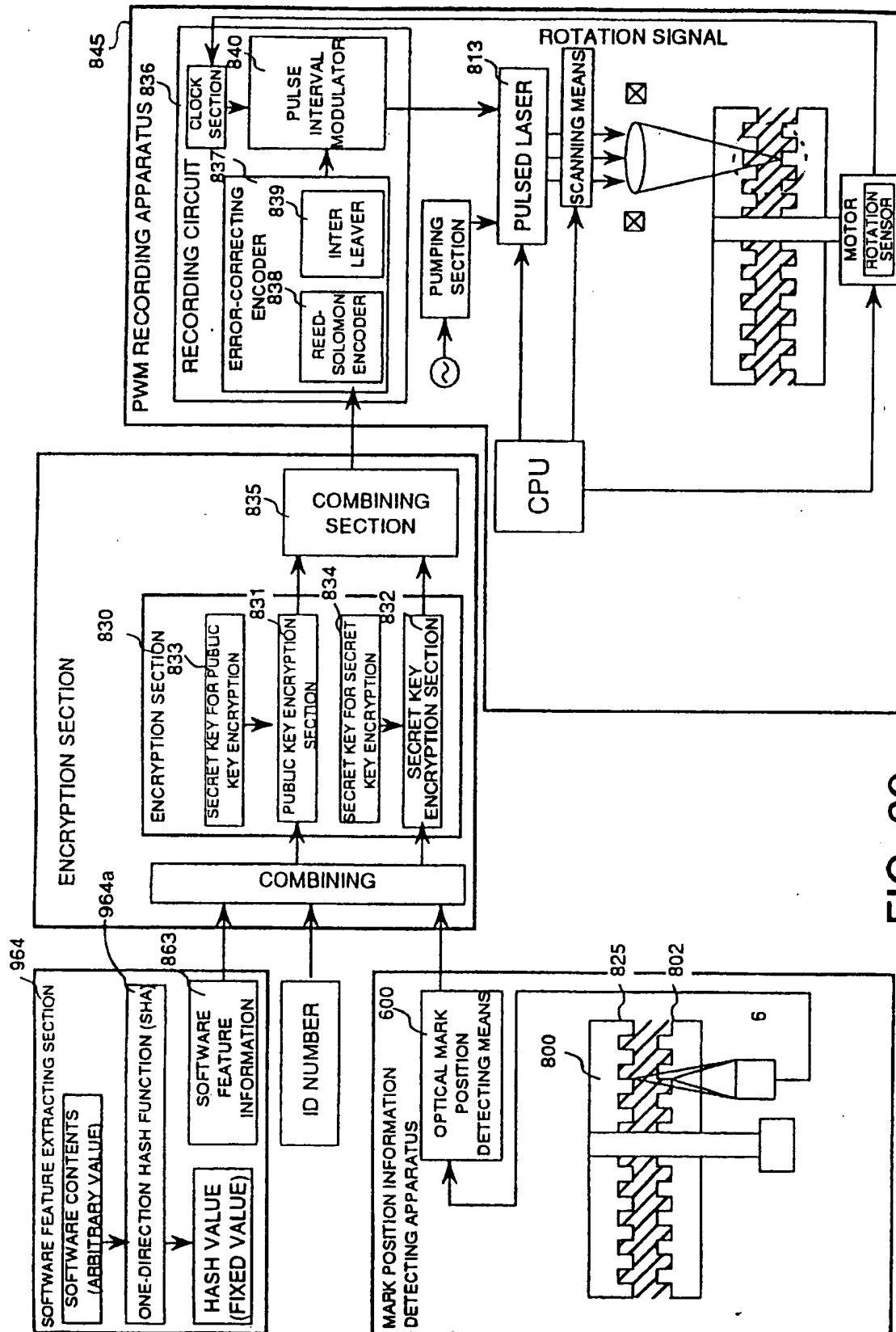
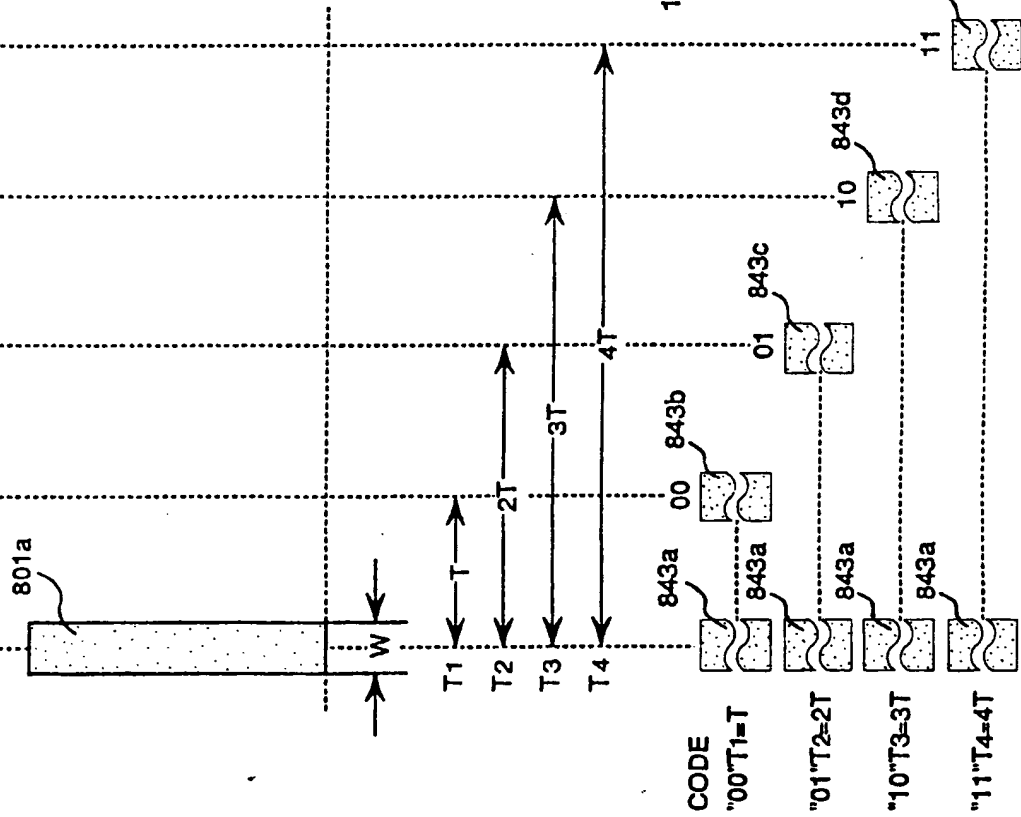


FIG. 29



CODE CLASSIFIED BY PULSE INTERVAL, 4-VALUE PWM RECORDING

CODE	00	01	10	11
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BARCODE LINE WIDTH VERSUS RECORDING DENSITY

LINE WIDTH W (μm)	PERIOD T (μm)	RECORDING DENSITY μm/bit	MAXIMUM RECORDING CAPACITY	LENGTH OF 1 KBITS
1 μm	T (μm)	μm/bit	ONE RING	mm
3 μm	2 μm	2.55 μm	56Kbit	2.5mm
5 μm	6 μm	7.5 μm	28.2Kbit	5mm
10 μm	10 μm	12.5 μm	11.2Kbit	12.5mm
20 μm	20 μm	25 μm	5.6Kbit	25mm
40 μm	40 μm	50 μm	2.82Kbit	50mm

FIG. 30

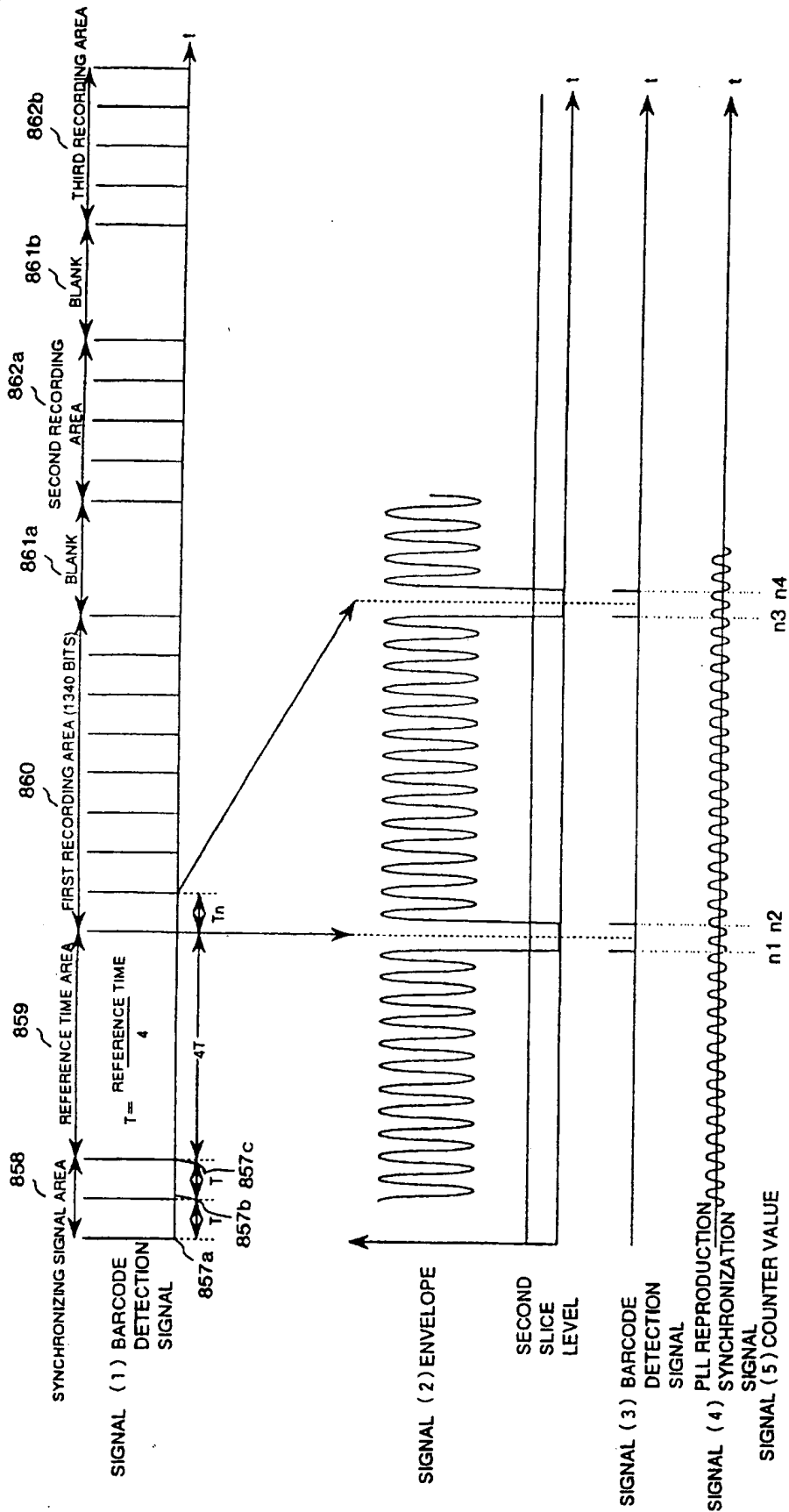


FIG. 31

$$T_n = \text{PULSE INTERVAL} = \frac{n_3 + n_4}{2} - \frac{n_1 + n_2}{2}$$

SIGNAL (6) DECODED VALUE
(PROCESSED BY
8-BIT
MICROCOMPUTER)

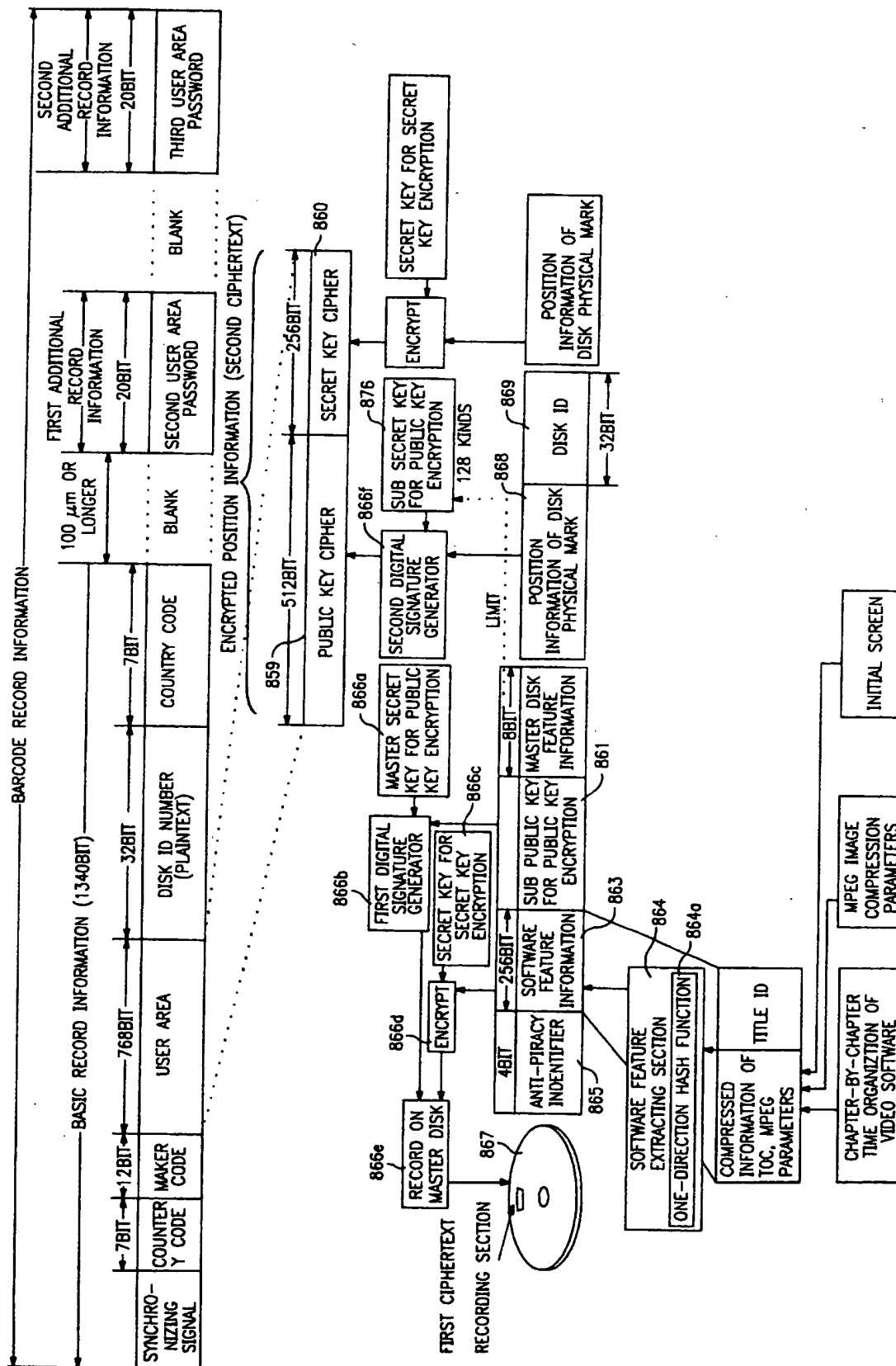


FIG. 32

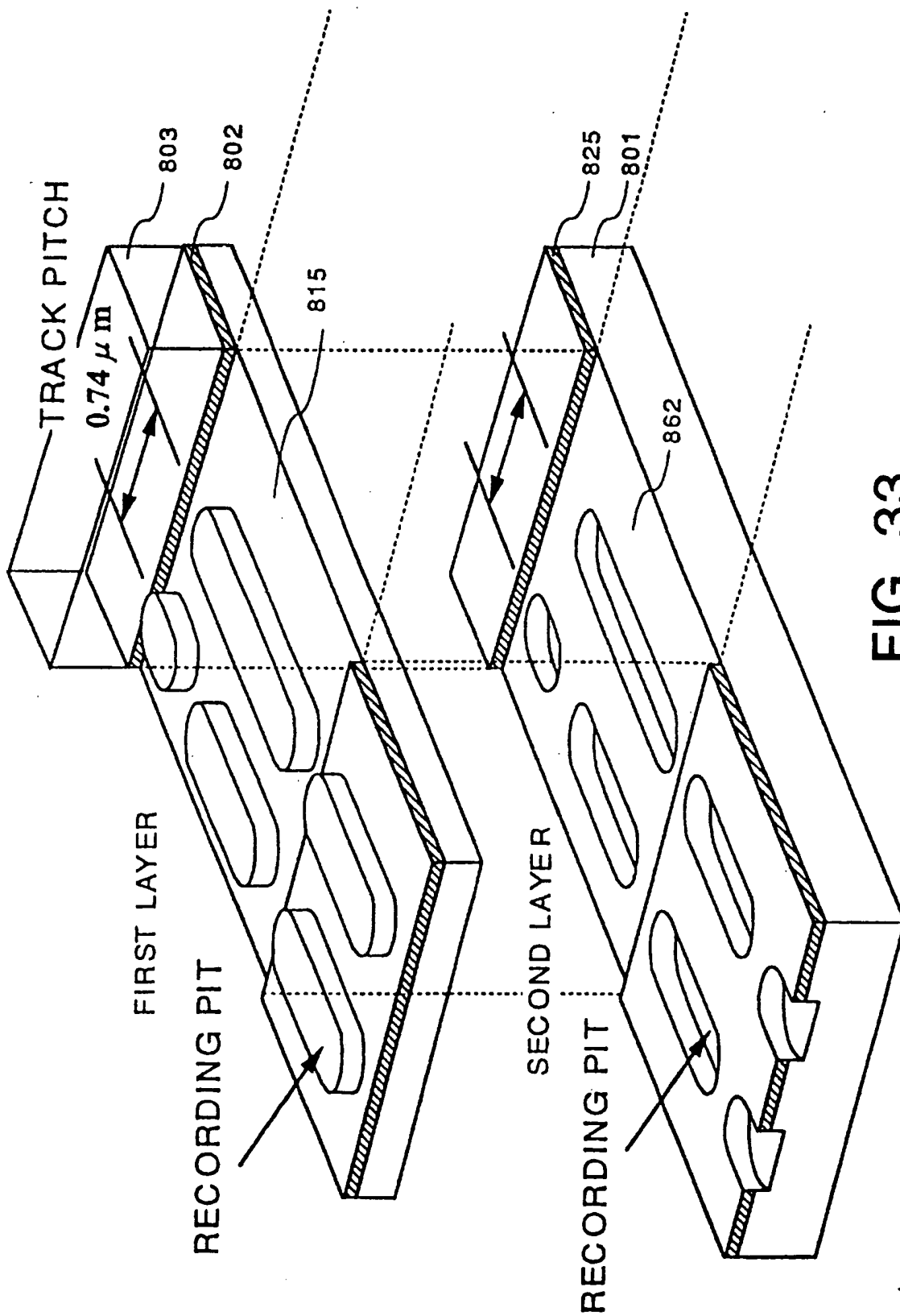
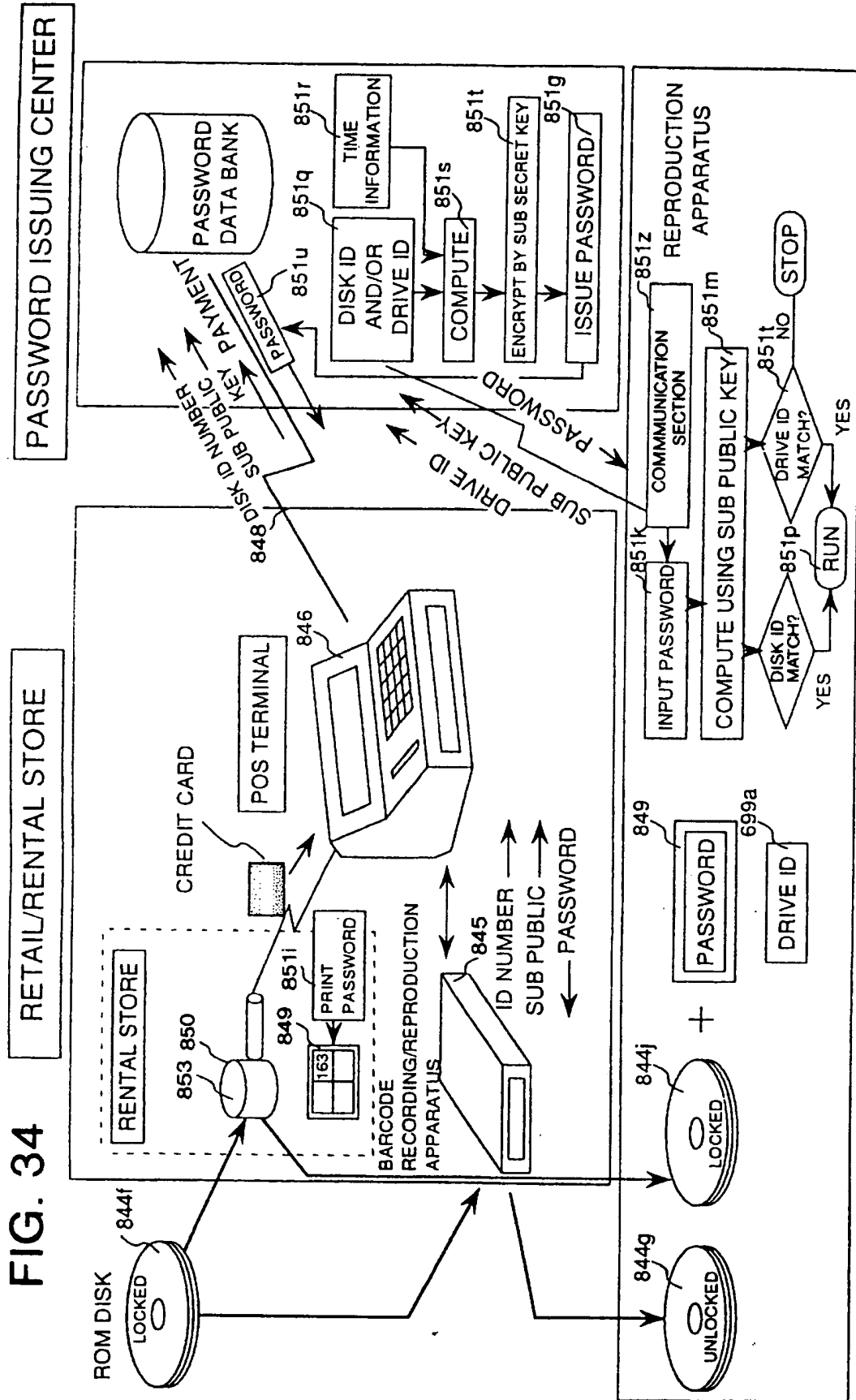


FIG. 33

RETAIL/RENTAL STORE



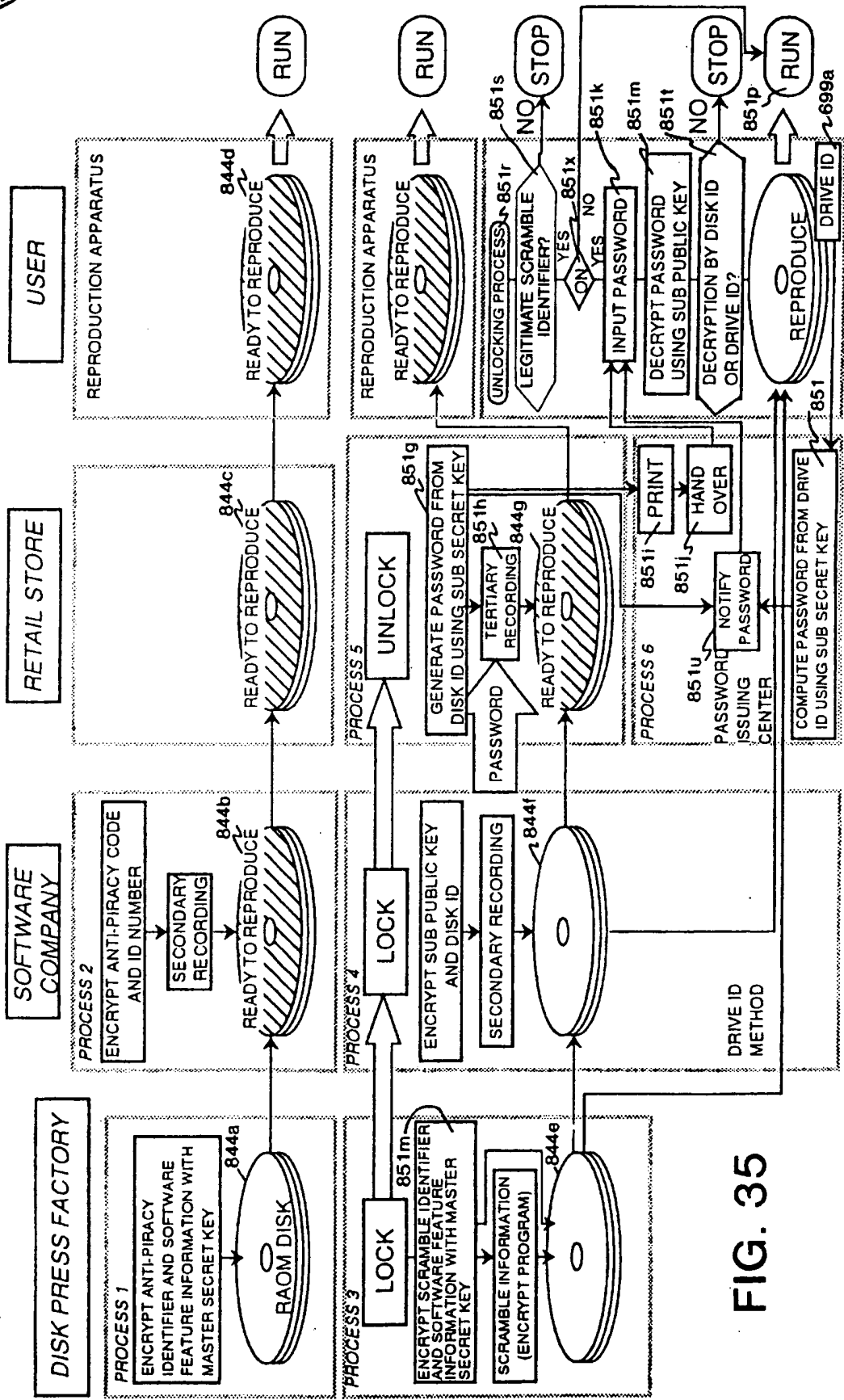


FIG. 35

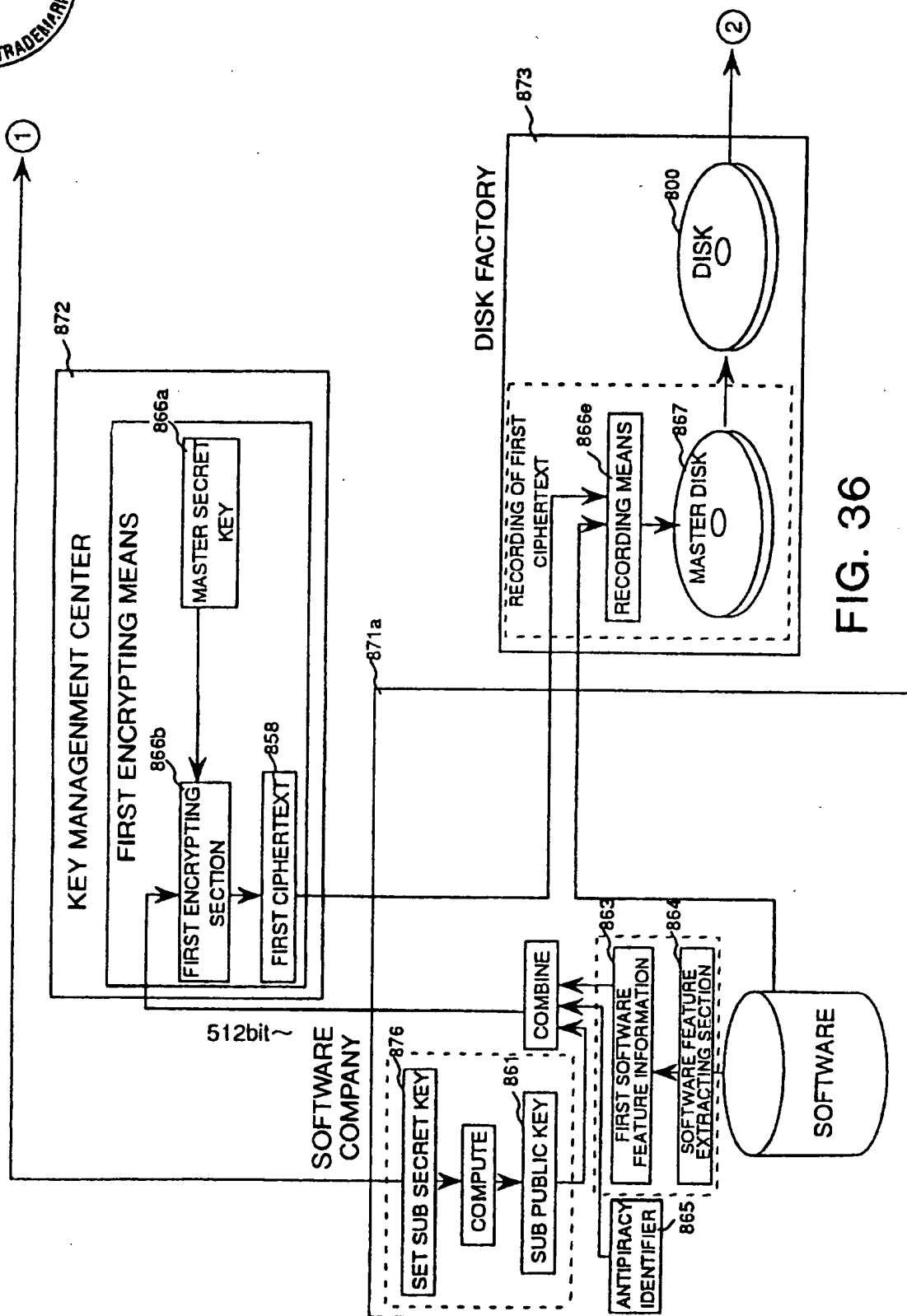


FIG. 36

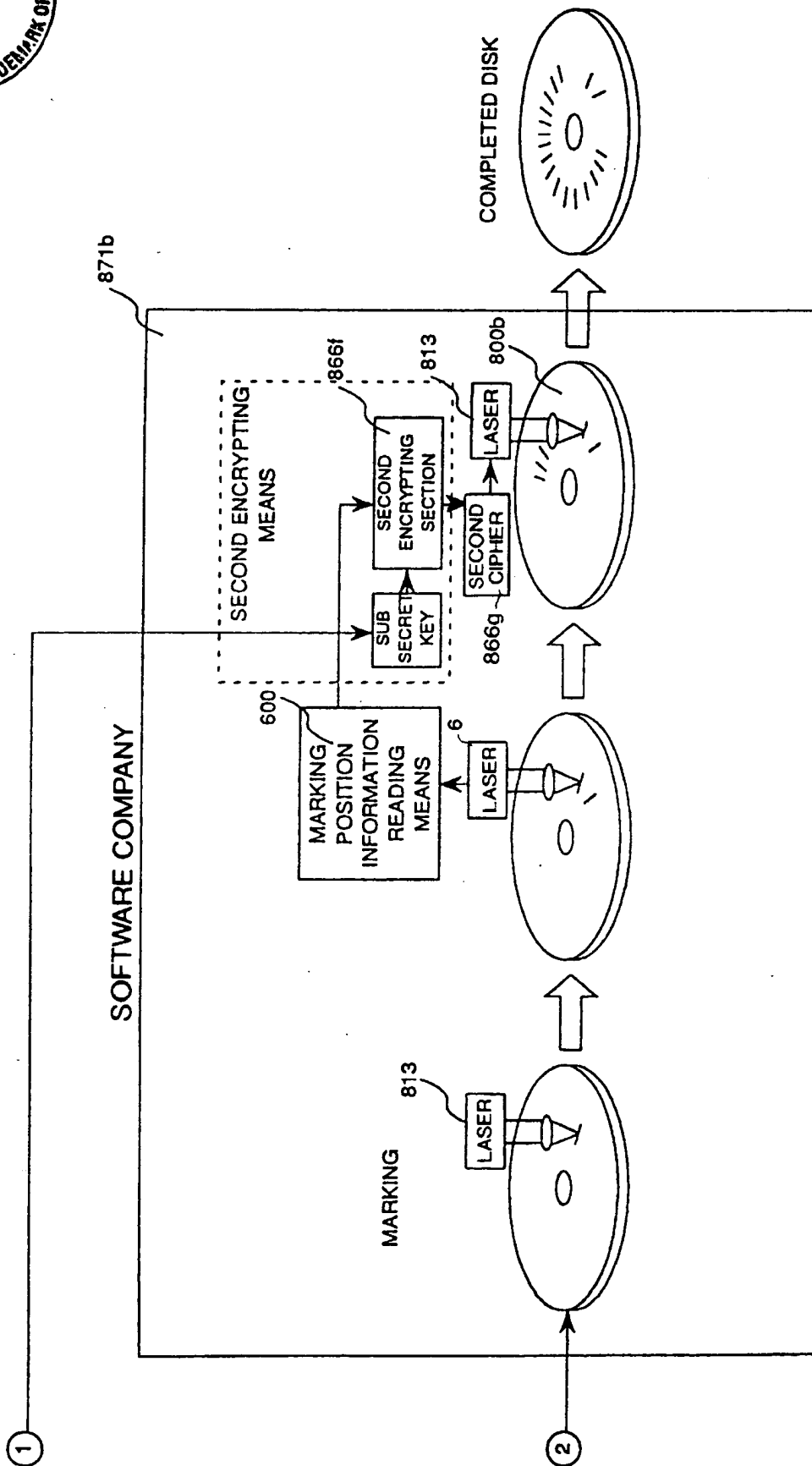


FIG. 37

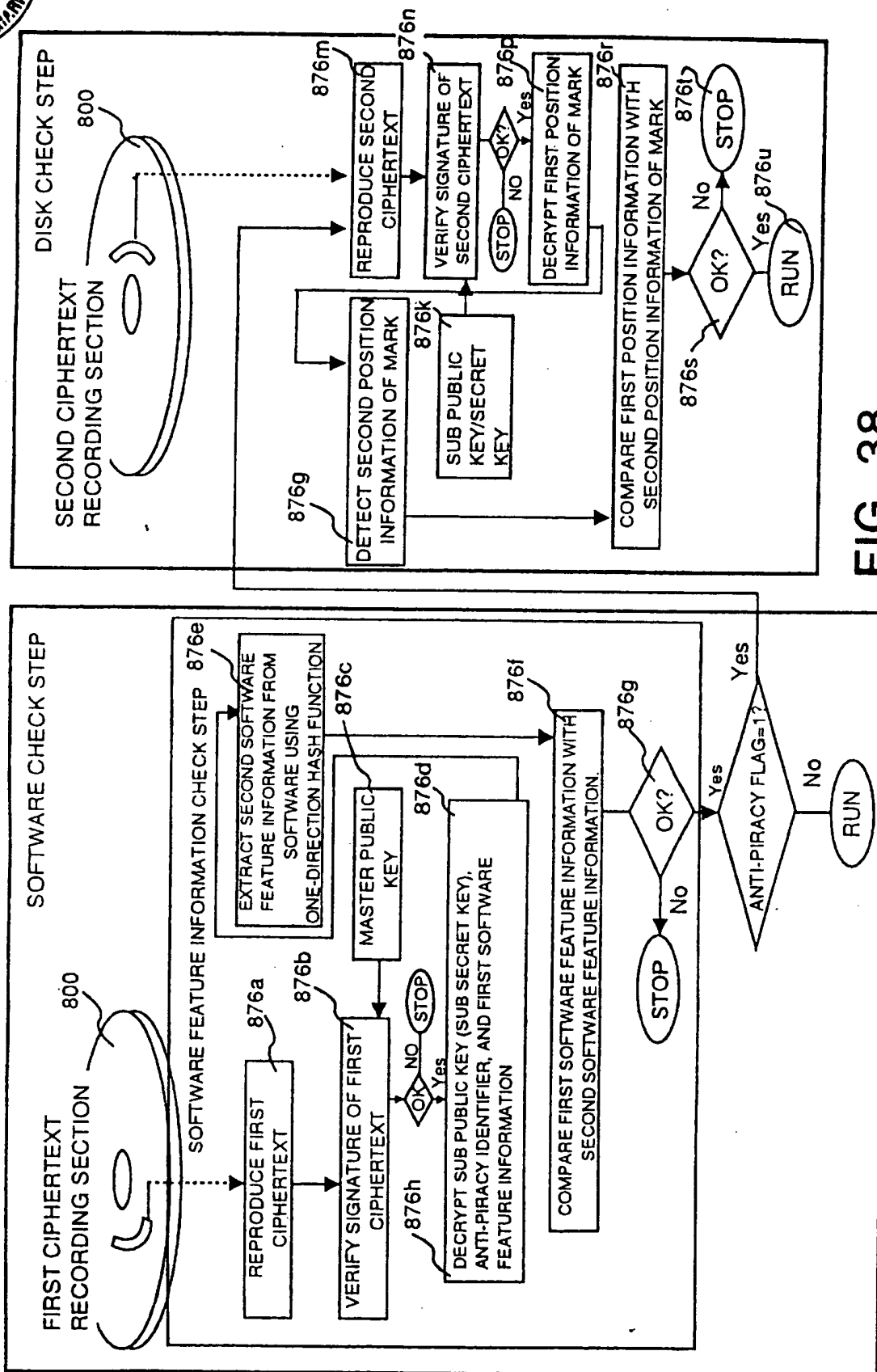
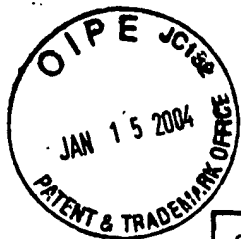
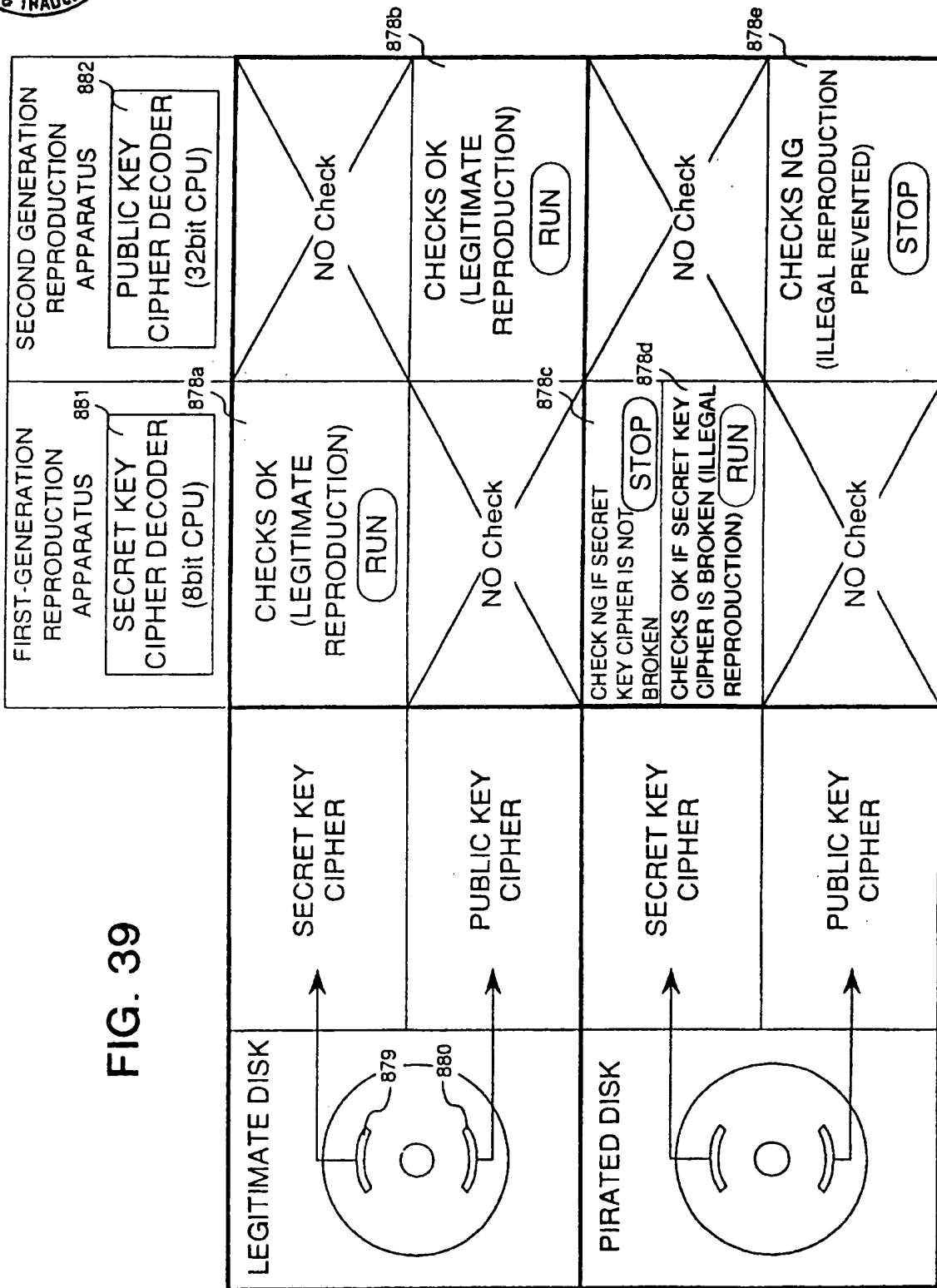


FIG. 38



FIG. 39



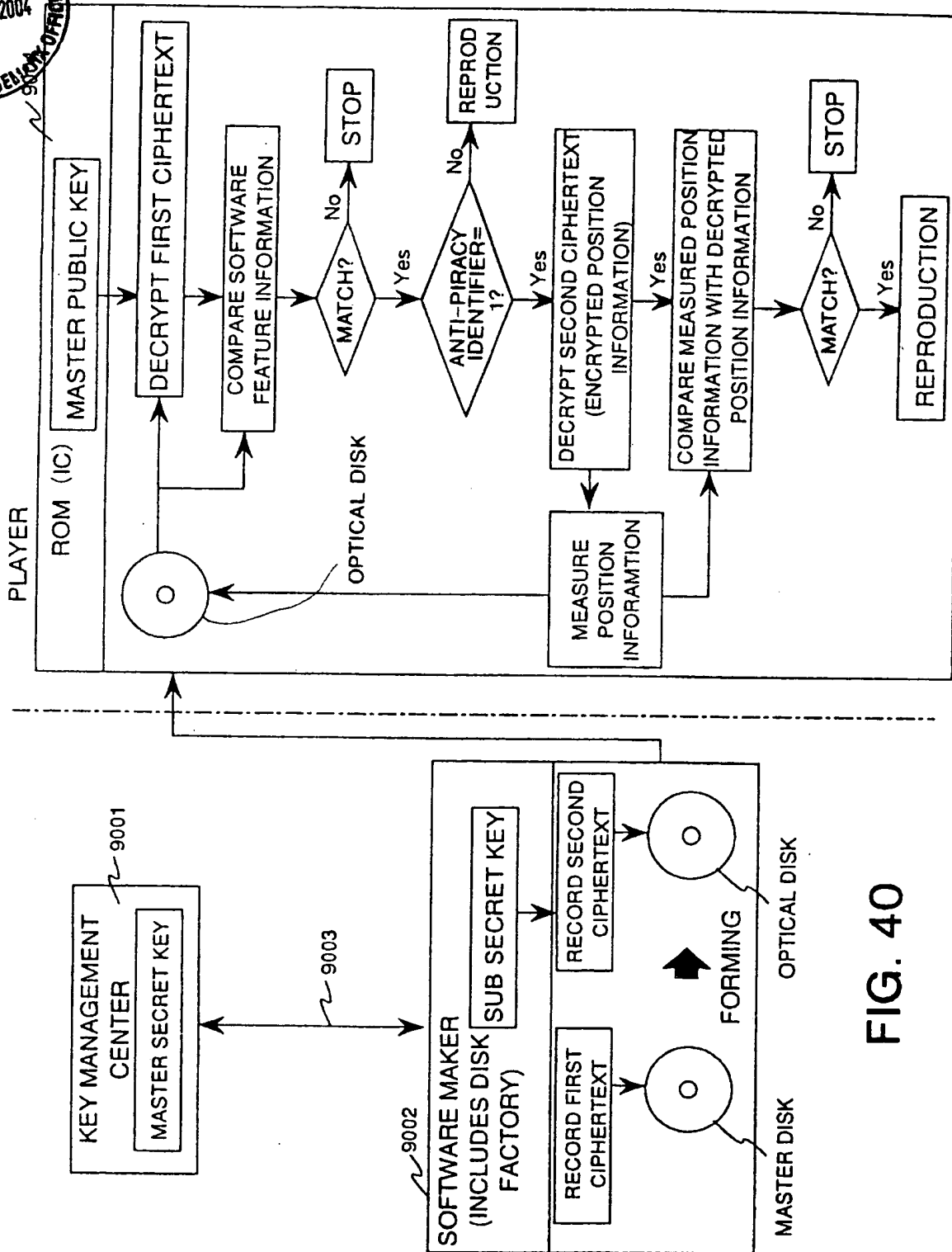
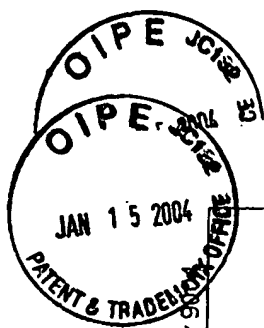


FIG. 40

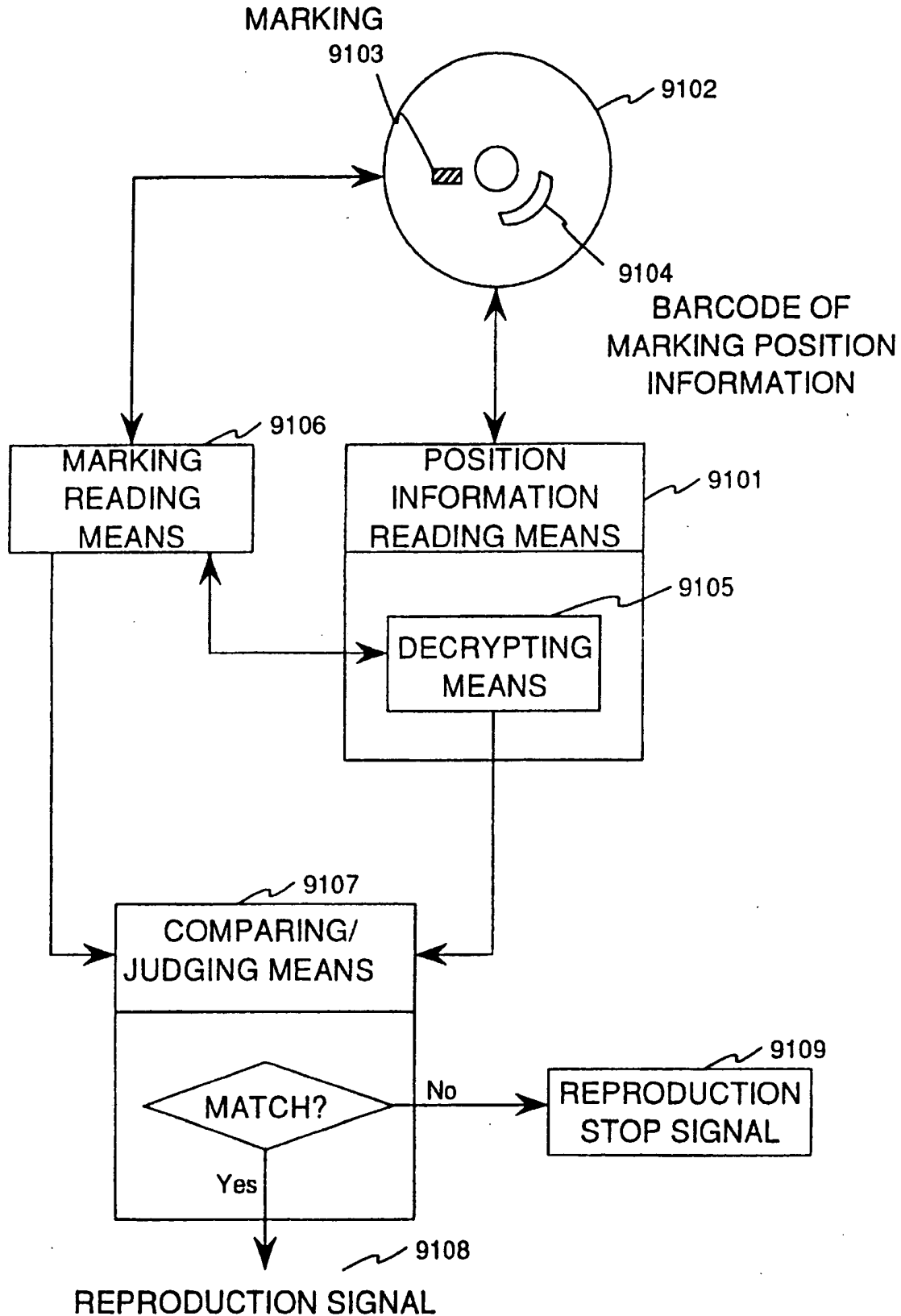


FIG. 41

